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The Stone from the Green Star

by Jack Williamson

Other scientific fiction by:

Bernard Brown

Harl Vincent

Bob Olsen

LEONARD EY 31

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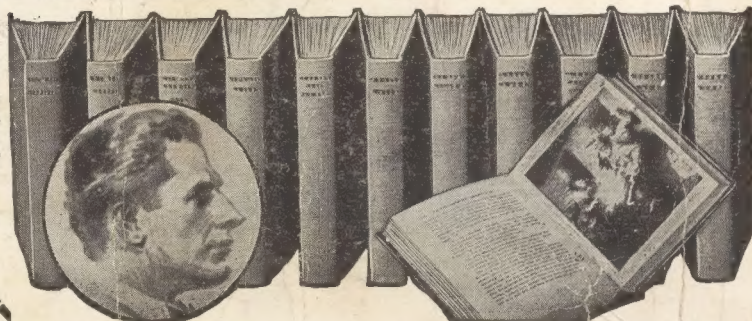
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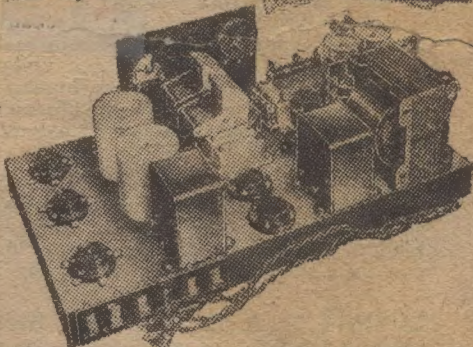
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AMAZING STORIES

Scientific Fiction

Vol. 6

October, 1931

No. 7

In Our Next Issue

THE ANTARCTIC TRANSFORMATION, by I. R. Nathanson. There is more to this business of North and South Pole expeditions than merely determining the ability of man to reach these extremes of the globe. When these regions become more accessible, natural resources of vast proportions may be discovered, which might, with the aid of man, assume great importance. It is of such a possibility in the Antarctic regions that our well-known author writes. This is an impressive story and quite plausible.

AUTOMATON, by Abner J. Gelula. Most of us ask ourselves every once in a while, "What will all this machine age bring us to eventually?" It is not an illogical question. Mechanical science has made such marvelous strides in the past thirty years that its possibilities seem unlimited. One trend, the tendency to replace human labor with the machine, is treated in an absorbing manner by our new author in this unusual tale.

THE RAT RACKET, by David H. Keller, M.D. The racket business has reached dangerous dimensions. This distinctively Keller story about a new kind of persecution and robbery seems very opportune and we know you will enjoy it.

LUVIUM, by A. R. Mackenzie. Here is an ingenious phantasy of a subterranean race, living beneath the sands of the Sahara. It is an excellent example of good scientific fiction.

THE STONE FROM THE GREEN STAR, by Jack Williamson. (A serial in two parts.) Part II. After a series of dangers, unique in the history of science fiction, the blind scientist and his co-workers reach their goal and get their prize, but at what a cost! Only Jack Williamson could have written such a story!

And other unusual science fiction

In Our October Issue

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Our Cover

of this issue depicts a scene from Part I of "The Stone from the Green Star," by Jack Williamson, in which is shown the blind scientist's ship, which was captured en route to the Dark Star, forcefully extricating itself through the hull of Garo Nark's ship, on its return journey to the Dark Star.

Cover illustration by Morey

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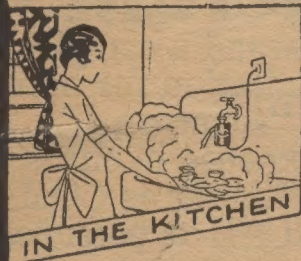
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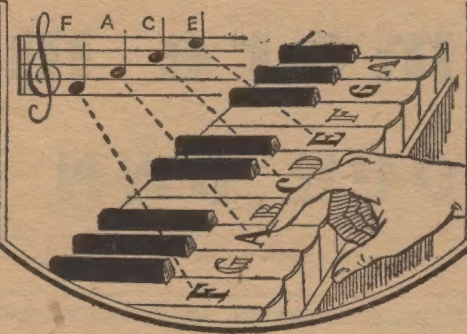
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Extravagant Fiction Today - - - - - Cold Fact Tomorrow

Iron, the Amazing Metal

By T. O'Conor Sloane, Ph.D.

IT sometimes appears that we are amazed at the wrong things. Water is an ordinary thing; its molecule is very simple—it is a chemical combination of two atoms of hydrogen and one of oxygen—but water does things that nothing else can do. Now, if we come to elements, we will find in a very common one, what may justly be termed astonishing properties. We may take iron as our example. Certainly iron is an everyday thing, but a truly wonderful metal.

An ancient proverb states that familiarity breeds contempt. It is a definite fact that familiarity with the phenomena of the world deprives them of interest, as we are too ready to take them for granted. Iron is one of the metallic elements of very wide distribution. Common and uninteresting as it seems, it is fair to say that this element possesses more curious properties than any other. It is not going too far to assert, that it plays a more varied rôle in our life and economics than does any other element.

Iron is an element. It cannot be separated into other metals; it is always iron. It has a high affinity for oxygen and is occasionally found in the metallic state in basalts. But if we want to find the real metal in any quantity in nature, we have to leave this world of ours and look to the sky, to the universe around us. For metallic iron in any tangible quantity comes to us, as the saying has it, out of the clear blue. Meteorites, of which a good many tons are known to us, came to the earth like giant cannon balls from the great cosmic spaces. Metallic iron, with some other metal in rather small amount, constitutes the usual meteorite. A number of iron meteorites have been placed in the museums of the world. Our earth is bombarded by great cosmic projectiles of iron.

No other metal comes to the earth as iron does from the sky—its coming out of the heavens, should be an unending source of wonder.

Iron has a high affinity for sulphur, and is the base of several sulphides. It is present in our blood, and plays an important part in our life and health. One of the sulphides may be black in color, though sometimes it is brown. How many chemical students, when they get ammonium sulphide on their hand, realize that the iron present in their skin combines with the sulphur of the reagent and gives the black stain which is due to iron sulphide?

Steel is a term applied often to very pure iron; originally it meant iron combined with carbon. It can be made very hard so that when struck by a piece of flint, bits of the metal will be dislodged and will burn as they fly about and will give a source of fire. In nature there are combinations of iron with sulphur, which will give such sparklets. That mineral was named pyrite from the Greek word signifying fire.

Pyrite resembles gold in appearance and has often deceived the ignorant; it has been termed fools' gold.

The present sparking cigarette lighters contain an alloy of iron with the metal cerium.

In the presence of moisture and carbon dioxide, iron rusts. An enormous tonnage of iron disappears annually as far as its usefulness is concerned, as rust, forming scales or powder of ferric hydrate. This is a defect menacing buildings and many other structures with destruction. And now, within a very short period, by alloying iron with other metals, a non-oxidizing "stainless" steel has been produced, which is absolutely immune from rust. Stainless steel it was first called and was used for the smaller things, such as cutlery. Now we see tons of it, shining like silver, on tall buildings, as a sort of adornment as well as a feature of structural value.

The sparks produced from "flint and steel" are particles of burning iron, each one forming an oxide, but not the oxide of rust. One of the oxides of iron, called the magnetic oxide, is the product of this burning. The oxide is easily fusible. If a highly oxidizing blow-piper flame is caused to impinge upon iron, it will heat it to redness, will oxidize it to the fusible oxide, which will flow away like water, and a heavy beam of iron can be cut through as if by a machine, in a few minutes or even seconds.

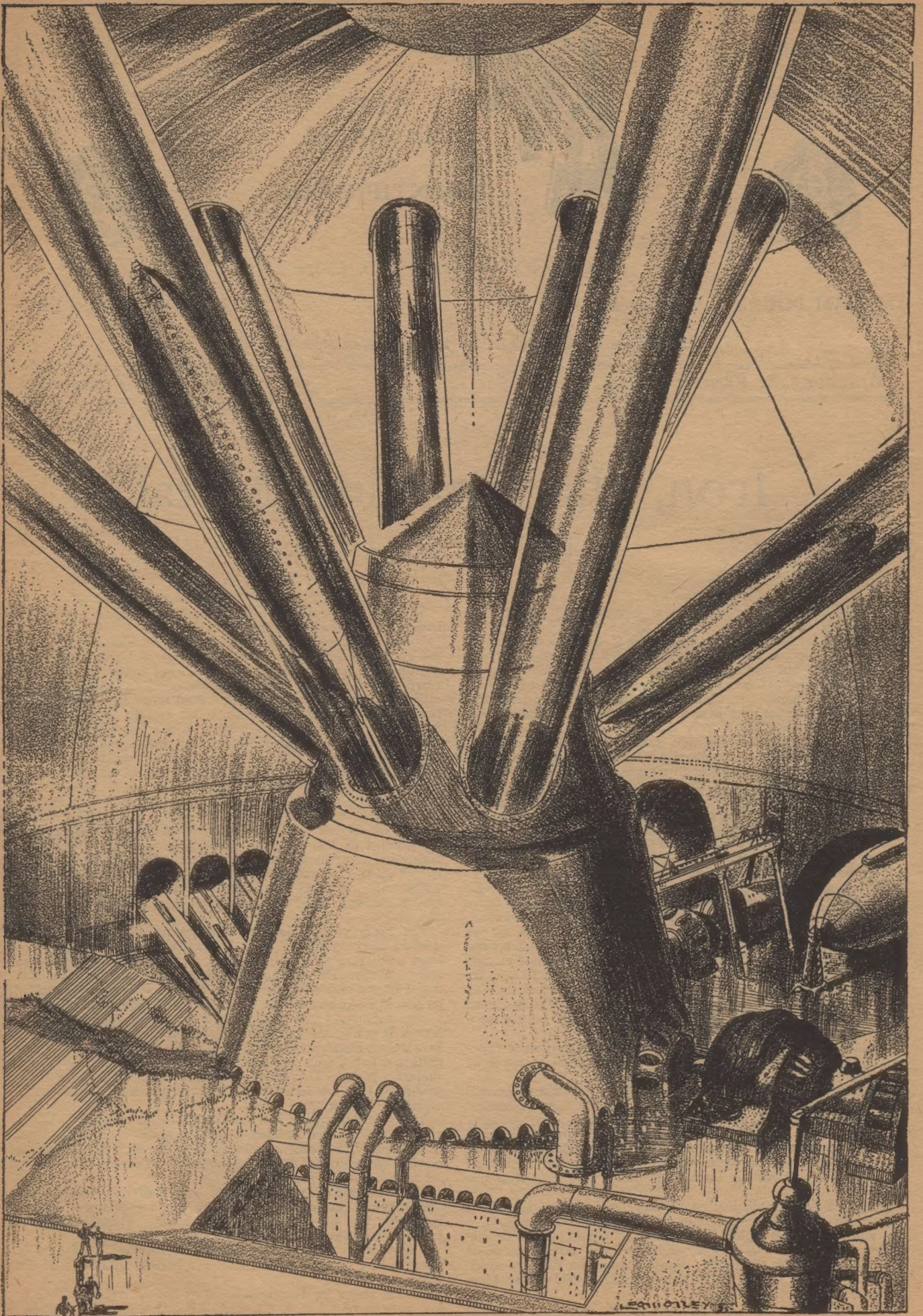
For many years gold was taken as the highest priced metal used in everyday life. Presently platinum, formerly less valuable than gold, rose in price by leaps and bounds, and made gold appear cheap. But all the while there was a far more expensive metal in common use all over the world. It is iron with a little carbon in it—otherwise known as steel. A pound of steel drawn through diamond dies until it is a fine wire some ten miles in length is worth about 52,000 dollars. It is used for hairsprings in watches, clocks and chronometers. So from iron, worth a few dollars a ton, a wire is made which is worth over fifty thousand dollars a pound. It is an amazing thing that eight or ten dollars' worth of iron would be enough for a hundred million dollars' worth of hairsprings.

The steel hairspring is a fairly minute bit of steel, yet in the chronometer it has guided countless ships across the oceans of the world, assisted by another little bit of steel, the compass needle. The course of a ship of thousands of tons' burden depends on a few grains of steel.

The magnetic properties of iron have made our electric power and lighting developments possible; without iron we would be using gas and oil for lighting our rooms. There is no substitute for it in the realm of electric development.

And there is a strong probability that this earth of ours is a great sphere of iron, coated with a relatively thin layer of rock, earth and water.

Iron is about the most wonderful of metals, and the above tells but a tithe of what it can do. Alloyed with other metals, it develops some wonderful properties.



Never had Dick imagined such a scene as met his eyes.

The Stone from the Green Star

By Jack Williamson

Author of "The Metal Man," "The Green Girl," etc.

ACCORDING to James Mackaye, in a book recently published, which he calls "The Dynamic Universe," all matter is only a form of radiation or vibratory energy and gravitation is an effect of radiation. This theory is, as far as we know, not yet generally accepted. If it is found to be correct—and it is not impossible—then remarkable progress in the fields of travel and invention might follow as a matter of course. If some of Mr. Williamson's hypotheses seem to be in direct contradiction to certain accepted theories, we must not forget that eminent scientists are always discovering "facts" which seem to be in direct contradiction to theories accepted as facts for many years. But this is not a scientific treatise—it is scientific fiction par excellence.

Illustration by MOREY

Author's Note

THE material for this story came into my hands in a very remarkable way. One morning in the fall of 1930, I found a curious object on my library table—a little box of some dully polished, black substance, about a foot long, eight inches wide, and four inches in thickness. It is wonderfully made. The sides of it glow with the rich light of the dull, soft polish. On the top is a small design—representing, apparently, the leaf and bloom of some strange plant—formed with tiny, gleaming stones, emerald green, sapphire blue and ruby red. And the cover *rolls* back; the jet-black, glistening material of the box being quite flexible. Its mechanism, though very ingenious, is astonishingly simple. The hasp is covered by a blue, cut stone, apparently a sapphire, glowing with deep, living azure fires.

Within the box I found several hundred sheets of a thin, stiff, flexible material. Its surface is like polished ivory. It is light and flexible as paper, indestructible as chromium steel. Each sheet is covered on each side with handwriting, in dark green ink.

I was astonished to see that this script was in the unmistakable angular hand of an old acquaintance of mine, one Richard Smith.

Dick Smith was a friend of mine at college, though we were never intimate. He was an athlete and a hero; I, a scientific and literary grind. He was known and admired by every student; while I walked unnoticed down the halls. Our slight acquaintance was accidental, being due to the chance that we had been thrown together in the laboratory section of Physics, 203. He read my first published story, "The Metal Man"; and, as all loyal friends do, said he liked it, and urged me to "keep it up."

Dick was by no means a man of brawn alone. Notwithstanding the fact that ninety per cent of his waking hours were consumed by athletic and social activities, he made marks in classes that were the despair of many who did little but study.

It was several years since I had heard from him. The last I had known, he had shipped for China on a Standard Oil tanker, out to find adventure. To judge from this story, he succeeded.

Regarding the material on which his notes were written, and the jet-black case which contained them, they seem to be of substances new to chemical science. They will not burn or fuse at any temperature to which I have been able to subject them. They are not affected by any of the common acids or bases. In short, they are indestructible by any physical or chemical means at my command.

The little case contained another remarkable object, wrapped in a little square of soft pink stuff that is somewhat like fine tissue paper, and somewhat like thin but closely woven silk.

The object is a statuette of Richard Smith, about three inches tall. In the nude, it is marvelously executed, revealing his superb figure to wonderful advantage. In detail, its perfection is complete, microscopic. What the material of it may be, I cannot say, but it is colored with every hue of life. It is astoundingly lifelike; I can almost see a twinkling gleam of humor in the dark blue eyes.

Richard Smith's manuscript does not form a finished story. Rather, it consists of nearly three hundred thousand words of notes and scattered observations, mostly in loose diary form. It is invaluable, of course, from the scientific point of view; and I have arranged to have it brought out, complete, in book form. The proofs have already reached me, and it will be issued in a few months, under the publisher's title, "A Vision of Futurity."

But, while the manuscript contains a tremendous and thrilling story, it is not suitable for magazine publication. For one thing, it is about five times too long. For another, it is full of scientific matter that, while immensely valuable, of course, is rather too involved for an idle evening's reading. Then, since the repetition of the personal pronoun, "I," is apt to make an unpleasant impression upon the reader, it has seemed best to tell the story in the third person.

Aside from these and merely editorial changes, the story stands as Richard Smith wrote it.

I say Richard Smith wrote it. I, for one, am con-

vinced that he did. He sailed for the East on a Standard Oil tanker. He vanished from the ship, as I have recently discovered, during heavy weather. It is recorded in the log that he fell overboard. If this story is not true, Dick is dead. And how could a dead man write a manuscript of three hundred thousand words, fictitious or otherwise?

I have seen enough of Smith's handwriting, in the reports he used to write of our physics experiments, so that I cannot mistake it. The black case, the writing material, and the statuette are to me evidently the products of another civilization.

Finally there comes the question of how the little box with its interesting contents arrived on my library table. Of course, a practical joker would have no difficulty in placing it there without my knowledge. But few practical jokes involve the synthesizing of compounds new to science, and the writing of a few hundred thousand words of manuscript—particularly, this sort of manuscript.

But the question of the story's truth is one that should greatly interest only the scientific students, who, it is hoped, will eagerly await the publication of Smith's complete manuscript in "A Vision of Futurity." For the fiction reader knows that the truth of a story is no sure index of its interest.

A story is interesting only as it shows the struggles of real human people in thrilling situations; only as it makes the reader feel the hopes and fears, the loves and hates, of living characters. And many stories that are fiction *seem* more real and more true than many stories that are fact.

So, even the reader, who feels that a hoax has been perpetrated upon me, may get some pleasure out of this. I feel certain that the story is true; I think it a glorious vision of the future of humanity. But that question is for the scientist, not for the lay reader.

In conclusion, I hope my note has bored no one, and I hope that Dick Smith's story may give every reader a few pleasant hours.

JACK WILLIAMSON

CHAPTER I

The Flaming Vortex

"**D**EAR Mr. Williamson," the first paragraph of Richard Smith's manuscript may be quoted, "you will likely be surprised to find these notes on your table, where Thon Ahrrora tells me she can put them. As maybe you can tell by the handwriting, I am your old friend, Dick Smith—you remember Physics, 203 at college. You might inform my maiden aunt, Petunia Smith, that I am not dead, as very likely has been reported. In a way, however, it is as if I were dead, and gone to heaven. That is, I am in a very wonderful place, and I cannot come back. I wouldn't return, if I could, however. Getting these notes through is going to tax the resources of Thon Ahrrora, I think. I am sending them to you, since you are the only literary man I know. I don't know if anybody will believe them. If not, they might give you a boost in the story-writing business."

That is enough for a sample of Smith's style. It is

neither colorful nor brilliant. Few non-scientific readers would care to wade through a thick book of rather slangy and ungrammatical narrative, even for such a marvelous story as his. I am sure my condensed version will be a welcome work.

Smith begins his narrative with the night of his disappearance from this world. The tanker was heavily laden with oil from the Richmond refineries, four days out of the Golden Gate. It lacked only a few minutes of midnight. The clear, moonless sky was thickly studded with glittering stars; but a tempestuous wind was blowing. The tanker was wallowing through heavy seas that washed over her deck amidships.

Smith, on some errand—what it was, he did not state—had started down the raised bridge or walk over the waist of the tanker, between the forecastle and the quarterdeck.

A streak of luminosity appeared suddenly in the air before him. A sort of blue gleam, he says, as if a bucket of blue fire had been upset a few feet in front of him, above his head. As he stopped to stare in wonder, this pillar of azure radiance began to spin, steadily increasing in brilliance.

It became a thick, whirling bar of cold, sapphire light, ten feet high. Its brilliance was very considerable, lighting the deck below, with the green, foaming seas occasionally surging over it. Dick stepped back a little, but fascinated wonder held him from farther retreat.

After a moment, subtle, fleeting gleams of other colors appeared outside the spinning bar of blue flame—woven circles of green and red. They were evanescent, flickering, waxing and waning. But rapidly they increased in number and brilliance, until the pillar of sapphire light was shrouded in a mist of rainbow color, in a shimmering mantle flushed with brilliant, living gleams.

It was the most beautiful and the most wonderful thing that Richard Smith had ever seen. Absorbed, fascinated by the polychromatic miracle, he forgot to wonder at its weird strangeness.

It was a straight, upright bar of cold blue fire, spinning at a tremendous rate. About it a flashing, wonderful envelope, woven of rings of fairy light, vivid green and flaming crimson, whirling, shimmering, alive with a thousand elfin gleams.

A wondrous vortex of fire, of color.

For minutes, perhaps—Smith took no note of the time—it hung there before him, growing steadily brilliant, until the sea flashed back its iridescence.

Then it exploded!

Smith is not sure just how it happened. Perhaps he was drawn into the vortex of light by a sudden attracting force. Or perhaps it abruptly expanded, enclosing him in its spinning rings of coruscating fire.

He felt the planking of the walk go from beneath him. For a moment, it seemed that he was falling through an infinity filled with flame, falling through shimmering clouds of soft sunset crimson, and cool jade green, through narrow, lancing rays of chill, intense sapphire light, among huge and dully glowing moons of orange and hot ruby radiance.

Then the lights were abruptly gone from about him.

A hard, cool surface was beneath him; he lay on his side upon it, at full length. Raising his head, he found himself upon a huge table or platform, of a substance that looked like polished jet. At one end was a dome of red fire, deep and intense—he felt that it was just at the limit of the visible spectrum. It was as if a fountain of ruby fire jetted from an orifice at the level of the table, rising two feet high, to fall back in a spreading, motionless dome. It did not move, yet there must have been an imperceptible flicker or vibration about it, for he felt that it was unstable, a dome of pure, vibrant energy.

A similar dome of fire was above his head, at the other end of the great table. But it was deep, dark violet, pure and intense—almost ultraviolet. An unstable dome of shimmering blue fire.

His glance went upward. Far above was a lofty ceiling, of a cool green, soft and luminous. He lay in a vast, six-sided room. The six walls seemed to curve smoothly in, far above, to form the ceiling; the six panels met at a point in the center. Walls and roof were finished in the light, restful shade of luminous green.

Abruptly, a soft, interrogative voice spoke behind him. Rather startled, he flung himself over to face it; he had supposed himself alone. First he saw only the empty floor of the vast, hexagonal room—floor of a smooth substance, unbroken by crack or joint, of a dark, rich, red-brown color. Still dazed, and somewhat

alarmed, he struggled to his knees on the long black table.

THEN he saw two persons. They stood attentively at the upper end of the low table or platform, near the wondrous glowing dome of intense violet fire. An old man, and a young woman or girl.

Dick stared at them.

Both seemed singularly attractive in person. While they were only of average height, they stood very straight, and seemed in radiant, robust health. Their heads were well formed, the features even and cleanly cut, almost Caucasian. The bodies of both, he noted, were well developed, strong and lithe.

The old man was blind. A sort of green shade hid his eyes; and he stood with a hand lightly on the arm of the girl. A magnificent mane of white hair, worn rather long, fell almost to his shoulders. He was clad only in a simple garment of dark green stuff, which seemed light and soft as silk. It hung from the left shoulder, was loosely gathered about his waist, and fell to the middle of his thighs. His arms, his right shoulder, his feet and the lower part of his legs were bare. His skin, even on his face, was evidently quite hairless, and of a healthy pinkish hue.

His figure was straight and erect; he seemed in excellent health. The power of a strong mind and an invincible will fairly radiated from him. Strength and nobility of mind and character were deeply written in the lines upon his high forehead and about his firmly closed mouth. Yet the mark of age was upon him. His robust constitution and his iron will were unmistakably already hot in the battle with the weariness, the weakness, and the dim mental vision of old age.

The girl, on the other hand, was the very personification of youth and vigor. Only a little shorter than the old man, her figure was trimly muscular, beautifully moulded, strength and grace united in it. A wealth of brown hair, free, fell to her shoulders in soft ringlets, naturally curling. Gleaming russet fires ran through it.

Like the old man, she wore only a slight, silken garment, supported by a broad strap over her left shoulder, and falling to her knees. It was of a rich, glowing blue, with little azure gleams shimmering across it. Strong, smoothly rounded arms and legs, dainty feet and small but capable hands, all exposed to view, were aglow with the ruddy hue of life, darkened a little with a healthy tan.

But it was her face that caught Dick's eyes and held them—the smooth, wide brow beneath the glistening brown ringlets—the regular, even features—the strength of the mouth, and its humorous quirk—the eyes, deep blue and sparkling, alight with life and wit and understanding.

For five minutes, perhaps, Smith sat there looking at them. He had, as yet, no idea what the wondrous vortex of flame had done for him; but he knew that it was something marvelous indeed. He had no idea where he was. Desperately, he cudged his brains for a clue to the puzzle. He could think of no part of the earth to which it might be that he had been miraculously transported. The great, green-walled room in which he found himself, the strange table with the domes of red and violet flame at its ends, the beautiful, strangely clad persons beside him—they seemed not to belong to any part of the world he knew.

The most plausible theory seemed to be that he was

dreaming. But his impression of his surroundings was too real and too vivid to be any part of a dream. He felt able to think clearly, which a dreamer is never able to do. And he devoutly hoped that his vision was real—especially the lovely girl who stood silently beside him appraising him with keen, twinkling blue eyes.

"Where am I?" he blurted out suddenly.

The aged blind man turned his head a little, as if listening intently. The girl voiced an interrogative word, in a soft low voice, with rising inflection. Both seemed listening, and Dick tried again.

"Where—am—I?" he asked, speaking slowly, and distinctly as he could. "Where—is—this? What—is—the—name—of—this—place?"

Comprehension dawned suddenly in the girl's eyes. She nodded and smiled at Dick—almost upsetting him—and turned to the old man. They exchanged a few words, in a soft liquid speech, that, it seemed to Dick, they spoke with jumbling rapidity. Then she turned to Dick again, and spoke a few sounds in her low, rich voice, repeating them several times.

"Yo ar-r-ah en Bardon," is the way they sounded, approximately.

"You are in Bardon," the meaning flashed quite suddenly upon Dick.

English was spoken here—but it was English so greatly changed that he could hardly recognize it. Then he was amazed at the change. Later, when he came to know where he was, he was amazed that English should have survived as a distinct tongue at all.

For two hours they continued the conversation thus begun. It would be interesting to know more of the details, but Smith, who devotes so much space to scientific matters, lets us see no more of it.

We only know some of the things he learned—that he was among a people who spoke an English so much altered that it was not English at all—and spoke it as an archaic tongue, no longer in common use. That he had been brought to this place, Bardon, by the knowledge and skill of the aged blind man, who was the father of the lovely girl with whom he talked—that the black table upon which he sat, with its domes of violet and crimson flame, had been the means of bringing him here, and that the old man was named Midos Ken, and the girl, Thon Ahrora.

After about two hours—and Smith only guessed at the length of the interval—the conversation was interrupted. A deep, booming bell-note rang from one of the smooth, glowing green walls, ringing majestically in the high vault of the ceiling. As it throbbed into silence, the two beside Dick faced each other—apprehension shadowing the gleam of humor in the girl's eyes, a fierce desire to read her feelings making her father forget his blindness for the moment.

Then they both faced toward the wall from which the deep, golden note had rung. Dick slipped quickly from the broad black table, and stood beside the girl, in his rough seaman's garb, looking with them.

A circular section of the green wall grew silvery, glowed with a gray light. It lost its smooth flatness, a misty shadow of silvery fog seemed to cloud it for an instant—then it vanished. For an instant Dick looked through a huge round hole in the green, glowing wall, down an infinite dark corridor, down an endless tunnel obscured with drifting silver mist.

Then the dark tunnel vanished, and it seemed that they could see into another room, just beyond the wall.

"Nothing but television," Smith muttered, struggling to brace himself against a tide of dazed wonder that threatened to sweep away his balance of mind.

But it seemed impossible that he looked merely at a shadow on a screen. The room seemed startlingly real, three-dimensional, vivid and bright.

It was a throne-room, evidently, gorgeous and splendid beyond Dick's imagination. The long floor had the yellow gleam of gold. The high walls were crystal, green and glowing with inner fires—they were walls of emerald! Set deeply into them were broad red panels, burning with intense, sullen crimson fires—panels of ruby! Strange patterns, grotesque designs based on scenes or objects unfamiliar to Dick, were inlaid in the red crystal—inlaid with sapphire, and silver, and jet. And the ceiling of the long hall, lofty, groined, and vaulted, was white, pure and glistening; it was whiter than the finest marble, white as crystal snow.

Along each side of the vast room was a row of men, standing at rigid attention. Dick noted that they were all splendid physical specimens, apparently of the same type of mankind as Midos Ken and Thon Ahrora. Each wore a single scant garment of black, fastened over the left shoulder and falling to the knee, held about the waist with a broad girdle of scarlet. And each had, leaning beside him, a heavy-looking black tube, apparently about six feet long and two inches in diameter—weapons, Dick supposed them.

BUT of all these things he was only vaguely conscious, for his glance went at once to the man seated in state just beyond the center of the huge room. He was upon a huge, massive throne of deeply purple crystal—its fires were richer, darker, more intense than those of any amethyst.

The man on the throne was huge, massively built, evidently in the prime of life. His slight garment of shimmering scarlet, gathered with a black girdle, revealed the full, mighty thewed strength of his limbs. His hair and his eyes were black. Pride, lust, and power were written large upon his face, with its broad, cruel mouth and heavy nose. They flamed evilly in the black depths of his deep-set eyes.

For several minutes, it seemed to Dick, nothing was said. The blind man and the lovely girl beside him were silent, waiting. They seemed a little frightened, or at least, dismayed. But he read courage and defiance in the proud, erect attitude of the old man, and in the girl's flashing blue eyes.

The man on the purple throne stared into the room. His black eyes, bold and imperious, roved over the green-walled room. He took but a single interested glance at the black table and Dick in his garb of another world. But he eyed the old man long, with hate and challenging scorn. And Dick's blood boiled at the bestial, hungry quality of his gaze when it rested on the lovely girl beside him.

Then he bent, whispered something to a burly attendant beside him, who bellowed his message out in the direction of the three by the black table. Dick did not understand the words, of course, so he watched his companions for a clue to their meaning.

The girl gasped, and went white, as if insulted. Quick anger flamed in her clear eyes. The old man clenched his hands, then reached out and grasped the girl's smooth arm, as if she had been about to leave him.

A moment, and Thon Ahrora had shouted her reply,

in a liquid, peeling voice, bugle-clear. While Dick did not understand it, it was clearly emphatic, defiant, challenging.

The man on the throne purpled in anger. He sprang to his feet, shaking a mighty fist. Depending upon the herald no longer, he used his own voice to shout something in harsh tones, strident, hoarse with menace.

Even as he shouted the threat, Thon Ahrora turned her delicate head, voiced a single clear musical note. Evidently it controlled the marvelous television apparatus, for Dick's view of the magnificent throne-room was abruptly cut off by a shadow, or rather a gleam of misty silver radiance. And the silver cloud dissolved, leaving the glowing green wall in view, smooth and unbroken.

"I don't know what it's all about," Dick thought, "but somebody has his hat in the ring!"

He turned to the girl beside him. "I guess you can't understand me," he said, "but I'm for you just the same! And here's hoping that some day I get the chance to land that guy a smash on his big nose!"

The lovely Thon Ahrora smiled, nodding in quick understanding.

CHAPTER II

Two Million Years

RICHARD SMITH, it seems, was in that amazing world of the future for at least a year before he began to keep his diary. It would be most interesting, certainly, to have a detailed account of the events of this period, with a full description of each of the wonderful things he found. Instead, he has given us only a brief summary. And he has a disconcerting way of mentioning the astounding inventions of futurity as commonplace things, as if his readers should already be familiar with them.

Most of his time, of course, at least in the first months of this year, was spent in learning the oddly musical speech of those about him. It was plainly derived from modern English, but changed in so many ways as to be hardly recognizable. Many simple expressions, which have descended to us almost unchanged from the Saxon, were still much the same. But the language had taken on an immense load of new words, to meet the demands of science. The alphabet had been reformed, to make spelling phonetic, and to make it possible to indicate more exactly the sound of spoken words. And the pronunciation of words had changed, so that English, once a harsh tongue, had become as liquidly beautiful as Spanish or ancient Greek, with the loss of none of its masculine power of expression.

Dick has given us his impressions of the moment when Thon Ahrora led him under the pointed arch of the green room's door. They stood outside on a hard gray pave; and Dick stared at surroundings that were weirdly unfamiliar, and strangely beautiful.

The silvery towers of the building from which they had emerged leapt straight up for a thousand feet, behind them. A cluster of hexagonal towers, of varying heights, side by side, joined, each capped with a steep, pointed cone. Of a white metal, they gleamed like new silver.

The reader may get some idea of the shape of the building by sharpening a dozen or so six-sided pencils of different lengths, and holding them in a compact

bundle with eraser-ends on a table, the longer pencils being in the center of the bundle.

They had stepped from a wide portal, shaped like a pointed Gothic arch, cut in the side of one of the lower towers. Stepped into a fairyland of color and beauty!

The air was just cool enough to be pleasantly invigorating—Dick saw the reason for the loose, simple garments of these people. And it was subtly spiced with a delicate perfume, a faint, tantalizing odor borne from some unseen garden of unfamiliar flowers.

The building stood upon the summit of a low, rolling hill, whose sides were covered with magnificent oaks, and with tall, majestic trees, that Dick took to be fir of some unfamiliar variety. From the base of the hill stretched broad, green meadows, bright with patches of blue and yellow bloom, broken with stately groves of dark-green trees. Here and there were low, forested hills, meandering silver brooks bordered with emerald verdure, glistening, azure lakes.

In college, Dick had majored in "art," drawing frequent cartoons for the school paper. Now his aesthetic sense was delighted by the landscape below him. Its beauty was ideal; its perfection beyond that of nature. He wondered as he admired. Then the true meaning of it burst upon him. His whole prospect was a prodigious piece of landscape gardening! The whole world before him was a garden!

Beautiful towered buildings were set upon distant hills. All of them were separated by miles of the lovely, park-like woodland and meadow, yet scores of them were in his view. The population of this world, Dick thought, must be very great, if its whole surface were so scattered with such great buildings.

No two of the huge structures that crowned the hills were alike, either in plan or material. Some were roofed with gleaming domes, some were topped with slender spires and minarets, some were fantastically turreted. Cylindrical, some of them were, and others had square or many-sided walls. Glittering with silvery whiteness and golden yellow, glowing with lights of red rubies and cool green emeralds, gleaming with the blues of sapphire and jade and lapis lazuli, shining with the prismatic whiteness of marble and the brilliant black of jet, they shimmered like elfin palaces built of rarest gems.

Here and there about the brilliant landscape rose black, cylindrical towers, domes of dazzling white flame jetting from their tops to crown them in diamond splendor. They, as Dick soon learned—but when, he neglects to mention—were the climate-controlling machines, which tempered the air to its quality of never-ending springtime.

Eastward rose a serried wall of mountains, massive and majestic; veiled in blue haze of distance. Green clothed their lower slopes. Gleaming diadems of snow crowned the rows of higher peaks, dully crimsoned with the somber bloody gleams of sunset.

To the west, and far away, was an ocean, its surface hidden in soft gray haze save where the red light of the setting sun gleamed from a broad sheet of it, ruddy and bright, like a burnished copper shield.

The sun itself hung low in the west, in a sky that was clear and darkly blue, almost violet. It was smaller than Dick remembered it, and red. It was like a blood-red disk, slipping down the sky. He could watch it with his naked eye, unblinded.

The sun, cooled and shrunken, gave him his first real clue to the fact that he was miraculously in the world

of the far future. Looking at it, he wondered at the delightful warmth of the air, which should, he thought, have been normally bitterly cold. Not until later did he learn the function of the machines which warmed it.

As he was watching, Thon Ahrora touched his shoulder with a gentle hand, and pointed up at the summit of the highest peak in the east, beyond the second range. The pinnacle was crowned with a jeweled tiara of green metal, set with flashing purple gems. Or so it seemed to Dick, for he saw a glistening green dome, with lanced, scintillant purple rays leaping from it like arrows of amethystine flame into the deep violet sky.

Smith has told, too, of a sight-seeing trip he made to this place, with Thon Ahrora. Though he does not say, it must have been several months later, for they were able to converse with a fair degree of freedom.

The vehicle was shaped like an elongated egg of white, glistening metal. That is, it was stream-lined, round and blunt in front, tapering almost to a point behind. Many rectangular windows were set into it, allowing an almost unbroken view of surrounding objects. It was small, about four feet in diameter and seven long, with a single seat across it. The machinery—what Dick afterwards learned about it is covered by his notes—was entirely concealed. It was almost automatic. Thon Ahrora controlled the little craft by voicing occasional musical notes.

When they were seated side by side within it, the lovely girl spoke or sang a single, trilling note. The door closed, and the little craft, silently, and with no means of propulsion visible to Dick, rose swiftly into the air to a height of several hundred feet. Three more soft, liquid notes, and they darted off toward the strange coronet of green metal and purple fire upon the peak, at a speed that Dick estimated to be well over a thousand miles per hour.

"That is a space-port, where the ships come in from the stars," the girl said. (Of course, all conversations recorded in Smith's notes have been translated into our English—if they were not, no one would be able to read them.)

"Ships from the stars!" Dick ejaculated.

Thon Ahrora smiled at his astonishment. "Yes, men travel across interplanetary space as they crossed the seas in your time," she said. "Even more easily, perhaps."

Smith's imagination was staggered. In all the wonders in which he had found himself, the possibility of interplanetary travel had not entered his head.

"You mean that ships go to the moon, and Mars and Venus!"

Thon Ahrora laughed. "No, the ships from the mountain go only to the planets of other suns. But this little flier would take us in a day to any planet in the solar system." She looked at him with keen, twinkling eyes. "We can go to the moon now, if you wish. It would take but a few minutes."

"No, thanks," Dick said hastily. "I'd rather not. Some other day, perhaps."

HE felt a strong need of a quiet hour or so to think over this astounding proposition of taking a ship for another solar system. It was bewildering, overwhelming.

"So other suns have planets with people on them?" he said at length.

"Yes," said Thon Ahrora. "Most of the stars of the

Galaxy have many planets. Tens and hundreds of thousands of years ago, hardy pioneers from the earth colonized some of these planets. It was a hard struggle; there were differences in gravity to contend with, and in the composition of the seas and atmosphere. Some were too hot, some too cold. There was alien life to be conquered on many!

"But science has always won! Every planet is a garden, like the earth. If there was no air, men made it. If oceans were lacking, the mountains were melted into water with the El rays. If it was too cold, heating plants were built, like ours, liberating heat from atomic energy. If too hot, gases were generated in the air which reflected heat."

"You mean there are people like us on the stars—people that talk as we do, think the same way!"

"There are. In your time was the beginning—the most interesting age of history, when science came to a race just emerging from barbarism, giving them more power than their gods. The English language was just becoming the universal tongue, to be fixed, by mechanical records, so that it remained the same through all the ages, the speech of all the races—not always changing, as purely spoken languages are.

"Now, with our radio and television, men can see each other over all the Galaxy—men can talk from sun to sun!"

"But how is it?" Dick broke in, recalling something he had learned back in Physics, 203. "There are stars that it takes light thousands of years to travel between."

"I know that light is slow," Thon Ahrora said. "Our speech, and our television pictures, and even our ships, are carried on the wings of the K-ray. Light is an electronic phenomenon. The K-ray is a vibration of a higher order, a phenomenon of the particles that make up electrons. It reaches instantaneously to the farthest star.

"But you have seen it!" she added suddenly. "Remember, on the day we brought you! You heard the voice of Garo Nark, from the Dark Star, across a void that light could not pass in a hundred thousand years!"

"I remember," Dick replied, having often thought of the man on the purple throne, and the threat he had evidently made to Thon Ahrora. "But I had supposed him on this earth. Perhaps it is good that he is so far away. He seemed no friend of yours?"

"He is not!" the girl cried, clenching the little hands at her sides. "An enemy of mine, and my father's! Mighty, he is. Lord of the Dark Star! Now, after he has scorned my father, and fought us for years, he wants me for one of his queens!"

Her lovely face, flushed with anger, was more beautiful than ever. Dick felt a sudden strong desire to kiss her; but forced himself to look straight ahead, at the rugged mountains rushing so rapidly to meet them, with hands on his knees.

"The Dark Star," Thon Ahrora explained, "is a huge planet, which circles no sun, drifting alone through the night of space. Because it was so cold and desolate, with seas frozen solid, and atmosphere fallen in a crystal snow upon its barren mountain ranges, the colonists avoided it. It became the haunt of pirates of space, who carried their plunder and their captives there, to hidden retreats in its dead, frozen wildernesses.

"Among the pirates were scientists; and they captured others whom they forced to join them. Many times the fleets of the Union descended upon them, but always

they brought forth new weapons, and held their own. For tens of thousands of years, the pirates have held the Dark Star, waging war on the Union of Man.

"Garo Nark, whom you saw, is Lord of the Dark Star, sole ruler of a mighty empire of pirates; he is the master of an outlaw planet. His fleets battle those of the Union on equal terms. Only the skill and genius of my father kept him from success in the conquest of the planets of another sun, in a great war of space waged twenty years ago—that is why he hates us.

"And on that day, when you saw him, he was demanding that I come to the Dark Star, to be one of the women whom he calls his queens!"

"Well, I'll give him a run for his money!" Dick muttered in his old English.

Thon Ahrora, thoroughly angry and altogether adorable, suddenly roused herself, to intone a soft musical sound which brought their amazing vehicle to a halt, and let it drop a few thousand feet, to land near the huge crown of fire upon the mountain.

When the two of them stepped out upon the mountain-top, which was flat as if it had been truncated with a huge knife, Dick was astounded at the colossal size of the thing that had looked like a crown. It was a hemispherical dome of green metal, twenty-five hundred feet high, and well over half a mile across, at the base. Its surface seemed to be studded with black circles—which were round orifices, a hundred feet in diameter. Broad, brilliant purple rays spurted from them at intervals, stabbing into the sky.

They had alighted near the edge of the dome. The girl took him forward, through an arched door in the green metal wall. Never had Dick imagined such a scene as met his eyes. The lofty green hemisphere was luminous on the inner surface, shedding a soft green light, which illuminated the amazing machines and the scene of furious, bustling activity within.

From each of the black openings that studded the dome sprang inward a huge, straight, transparent tube—a great pipe of glass-like substance, a hundred feet in diameter, and a thousand in length. The inner ends of these colossal, cannon-like tubes of crystal were fastened in a huge frame of silvery metal that rose five hundred feet in the center of the dome, a frame filled with machinery complicated beyond Dick's ability to describe it. He only gives the impression that the apparatus connected with each tube resembled that about the carriage of a modern naval gun—providing means, doubtless, for training the tube, and for absorbing any recoil. Immediately behind each tube was a sort of reflector, polished and silvery, carrying inside it something resembling an enormous, S-shaped neon tube, which burned with a bright purple glow while the tube was in use.

Outside this great mechanism in which the bases of the crystal tubes rested, an upright silvery cylinder rose from the floor to the side of each of them. These cylinders, Thon Ahrora informed him, were elevator shafts up which freight and passengers were brought from subway terminals cut in the living rock of the mountain below.

"Watch!" the girl cried suddenly, pointing to a great, transparent tube above them, in which a purple glow had suddenly sprung up. "See, the K-ray is in the tube! A ship is flashing down the beam, to earth from another planet of a far-off star!"

Suddenly, the red-violet light went out. And nearly two-thirds of the length of the tube was taken up with

a great cylindrical ship of gleaming white metal, a hundred feet in diameter and six hundred in length.

A gangplank was thrown across, from an opening in the end of the vast ship, through a sliding door in the transparent tube, to the upright cylinder of the elevator shaft. Dick saw a broad stream of passengers surging across it, many of them carrying packages of various kinds. Thousands of them poured out, vanishing into the elevator shaft, which, he thought, must have a sort of endless chain arrangement, in order to be able to accommodate so many. Then came a river of trucks, bearing boxes and bales and barrels—rich merchandise of foreign worlds, treasures of far-off planets, brought in the holds of this great argosy of space.

Half an hour he watched, thrilled, amazed, and wondering, before the stream of men and goods dwindled and stopped. Immediately a counter-current set up in the opposite direction. A second crowd of passengers rushed into the ship. The endless rivers of trucks brought back innumerable loads of cargo.

Then the gangplank was drawn back, the opening closed in the silver side of the ship, the sliding door in the crystal tube fastened. A purple glow lit the S-shaped tube behind the great ship, flowed up about it, filling the crystal cylinder. And abruptly the ship was gone, off to another planet.

Smith had much to fill his thoughts as the little vehicle shot back with them to the huge building of silver towers, upon the green, forested hill.

He has given us an account, also, of a conversation with Midos Ken, the blind father of Thon Ahrora, about the means by which he was brought to this astounding world of futurity.

"Your coming to Bardon," the old man said, "was an accident. Or at least it is an accident that you were selected instead of some rock or other dead object. But now that you are here, you need not fear for your welcome." A warm, kindly smile lit the lined face of the old man.

"I am a scientist, you know," he went on. "The years of my life, even my eyes, I have given to find knowledge—knowledge that will aid mankind to live happily. Of late years, my daughter has been my eyes and my hands; and we have labored together.

"One great quest has been ours—a search for the one great secret that still evades us. The one secret that will banish the fear that weighs like a load on every man, that will fill the long days of humanity with complete happiness.

"Our experiment has always failed. One substance there is, which we must have, and which we cannot make in our laboratories—Thon is planning to try again; but I have no hope of her success. Failing to synthesize it, I thought to reach forward or backward into Time, to find it already in existence—for Nature, which is infinite, must sometime have formed it.

"For Time is merely another magnitude, a dimension at right angles to the three we move in. The theory was good. The experiment worked to the extent that it brought you to us—you were snatched up and drawn through time by a field of force generated by the domes of flame at the ends of the black table.

"But even that experiment failed of its object, for it takes a tremendous amount of force to change any object in the past. Even I can hardly understand this unexpected inertia—but it must be due to the fact that the events of one day influence those of the next, and thus,

to move an object in the past, I had to change a chain of consequences reaching through the whole expanse of time.

"To bring you here, out of the past, consumed energy enough to stop the earth in its orbit, and send it crashing into the sun!

"Exploration of the future failed even more completely, as certain metaphysical considerations will show that it must, because of the way the future is dependent upon the present.

"Thus, we are able to search only in the present time for the substance we need. It does not exist on any planet that has been explored. I have sent scouts to prospect for it on those few and distant planets where man has never gone. And Thon Ahrora is going to try once more, at our great laboratory back in the mountains, to synthesize it from pure energy!"

"So I am in the future, after all!" Dick said.

"From your old point of view," Midos Ken agreed with a smile. "You might consider it the present, now, however. It would be quite beyond the power of our apparatus to send you back, though we might send a message, or something of the kind."

"Who wants to go back, anyhow?" Dick grinned. "But how far in the past did I come from?"

"I can't tell you exactly," the old man said, "since the historians are a little uncertain in their chronology. But it is a bit more than two million, twenty-five thousand and eighty years!"

Dick whistled, and stood a while in dazed silence. But he recovered quickly, being by this time used to such staggering facts, and asked another question.

"Tell me, what is this great experiment?"

Midos Ken smiled, rather sadly and wistfully, Dick thought.

"Wait, son, and you shall see," he whispered.

CHAPTER III

The Day of Failure

ON his second day in this new world, Dick had cast aside his old clothing, which would have been uncomfortably warm in the eternal summer that prevailed. Thon Ahrora had provided him with the short, sleeveless garments that seemed the universal garb. He had been welcomed into the simple household of Midos Ken—which consisted only of the blind scientist and his daughter. They occupied only a part of one of the towers of the huge building, which housed a small city. Its name was Bardon.

Smith was intensely interested in the social system and the government of the world about him. Much space in his notes is devoted to such topics, though we can only glance at them here.

Food, in a variety of delicious forms that was bewildering to him at first, was manufactured in great laboratories, synthetically, and distributed freely to the entire population, whether they labored or not.

The entire industrial machine was owned by the state, from mines and factories to stations where the products were distributed to the consumer. Every citizen was permitted to work as much or as little as he desired, at whatever task he performed most efficiently, being paid proportionately to the value of his services and the time he worked, in tokens of exchange. The entire production of industry was thus returned to the workers,

physical and mental, except such a part as was necessary to maintain the equipment, to provide the necessities of life to all, and to pay government expenses such as that for maintaining the climate-control stations.

Laws were few and crimes fewer, he learned. Education took the place of policemen. Since the necessities of life were free to all men, and its luxuries might be had abundantly for a little work, men were not driven to crime by unemployment and resulting need, as they are in our day.

And to make their lives most valuable to themselves and to society, an elaborate system of education, whose officers were carefully trained, had full and sole charge of children, almost from birth to maturity. Thus the talents of every person were discovered and developed. And no child was born into a squalid sink, to grow up a professional criminal. Competent parents were permitted to rear their own children.

Once, while the lovely Thon Ahrora was instructing him in the written language of her race, and plying him, at the same time, with questions about his own time, which, it seemed, had been pretty well forgotten in the course of two million years, it entered Dick's head to write a history, covering what he remembered of our age.

He disliked to accept the hospitality of the girl and her blind father without making some repayment, though they assured him that the burden was slight, food and shelter being supplied by society. He had applied to the state agency for employment, with poor results. It seemed that the schools trained every person in one or more useful occupations which he might choose. Dick had not been so trained. He volunteered to dig ditches, only to discover that ditches were now dug with a rather complicated device which dissociated the electrons of earth and rock, reassembling them into atoms of hydrogen and oxygen to make water vapor, which was condensed and piped away. He had had no training in the handling of this El Ray. Finally he had been put to digging up some blue flowering plants that had spread into a meadow where they did not belong—he could do this, even without the artistic training of a landscape gardener. Thon Ahrora had found him and made him come away, when his wages amounted only to a single little disk of green crystal—the token of exchange lowest in denomination. The girl had generously offered him a handful of them, with a few of the blue disks of greater value. But Dick refused, knowing that, like most scientists of our day, she and her father had few resources to spare from their experiments.

Now, it struck him, if others were as much interested in his own times as Thon Ahrora, he could write a book of history and sell it. The girl was delighted with the idea. She assured him that an interesting book would be paid for. And she offered to help him get it properly expressed in her language, and to help him interpret his facts from the point of view of her age—it is doubtful if his work could have succeeded without such assistance.

He immensely enjoyed the months while they were working on the book—though, to judge from his diary, he did not realize even then that he had fallen in love with the girl.

Besides the text, Dick was able to provide illustrations, making use of his college training in art. First he had thought of simple drawings to show the machines, the costumes, and the animals of his time—most of our

domestic and wild animals being extinct, it seems. But Thon Ahrora produced a broad sheet of black material, and a small instrument which, by electrochemical means, could produce any color of the spectrum, or any combination of them upon the sheet. After he had mastered the use of it, he produced illustrations in full color for the work. Here, too, he had the girl's assistance—she was a rather better artist than himself, it seems.

It would be interesting to see a copy of this book—which was printed on white sheets of the same material as the notes are written on. But Smith did not send one back. The writer would like to know how our civilization was interpreted in terms of that much higher culture of the future. Smith admits that his facts were not very accurate; he did not study his college history half so well as he should have done, he says. Even his illustrations must not have been strictly reliable—he mentions a difficulty in arranging the horns and ears of a cow.

Thon Ahrora took the work for him to the state department of publications, where it was printed. Dick was pleased to discover that all profits, above a certain part deducted as a sort of tax to support the general activities of society, would be his own—no publisher would profiteer upon his efforts.

THE book was successful—far more so than either of them had anticipated. Not only did the many billions of the earth's population read it eagerly. It was sent by television to the planets spinning about a million other suns, and read by their uncounted multitudes, who were of the same race, speaking the same tongue, and maintaining the same interests as the people of the earth.

Any man, Dick found, who can aid or amuse a great many people, if only slightly, has done more good and is paid more highly than he who does much for a few. The amount of the profits which poured in from the far stars of the universe was astounding.

The tokens of exchange were little disks, much like our coins, with designs engraved on them. But they were of crystal substances, which, Dick learned, were synthetic gems. Green disks of emerald were used for small change. Sapphire tokens were more valuable; those of ruby more precious still. But the diamond disk was of the highest denomination, and the standard of value.

A whole high room in the habitation of Thon Ahrora and her father was soon piled full of coffers of these scintillant diamond coins. Dick kept one open where he could run his hand through the cold gems, letting them fall through his fingers in shimmering torrents of fire.

"It is wonderful!" Thon Ahrora told him, with shining eyes. "No book has ever been so famous! No man has ever earned so much! What will the stupid officials think, who put you to digging weeds?"

"You mean I am really the richest man in the world—in the universe?" Smith said in surprise.

"You are many times richer than any man in the Union," she told him. "For each man has only what others are willing to give him in exchange for his own efforts. Men do not seize the machinery of industry, and rob others of the just fruits of their toils, as some did in your day.

"No, you are rich beyond imagination. You might buy anything that men desire. You could build an interplanetary flier, finer than has ever been made, hire a crew, and go exploring to the ends of the universe if you wished. Your smallest coffer would pay for that!"

"I'll think it over," Dick said. "But, you know, I've been having a very interesting time right here on earth—" he paused, then ventured to add—"with you!"

The girl said nothing, but smiled at him with an odd light in her glorious blue eyes.

"By the way," Smith asked after a little time, "what are you going to do with your share?"

"My share?" Thon repeated in surprise.

"Half of all these boxes of diamonds are yours, you know," he said. "We were partners in the undertaking, you remember."

"No I can't take it," the girl objected. Oddly, tears stood out in her eyes, glistening. She choked back a little sob. Suddenly, to Smith's confusion—and to his intense delight—she threw her strong, smooth arms around his neck, and kissed him on the lips. He was dumfounded at the moment; later he reflected that it was not amazing that human emotions had a bit more freedom of play after two million years—and that Thon was a rather straightforward sort of person, apt to show her feelings openly.

Now she drew back suddenly, with a hurt look, noticing his astonishment. "Oh, I'm sorry—if you care!" she cried in a pained voice. "You look—"

"Not a bit," said Dick. "I like it. Just surprised. I'm not used to things here, you know."

"Forgive me! I didn't mean to hurt you!"

"Nothing to forgive," Dick said, looking into her blue eyes. "Just try it again. I'll try to behave better, next time!"

Thon stepped back, her smooth skin flushed a little. "Don't make fun of me!" she cried, almost angrily. "I didn't think—And it was so good of you to offer me the share of the tokens!"

"They are yours!" he responded. "I'll never look at any of them again, unless you take half. I couldn't have written the book without you, and you know it! And if you go broke, I'll lend you part of my share!"

The lovely girl turned suddenly and hurried away—to keep him from seeing that she was crying, Smith was sure.

Dick had been a year in the world of the future when Midos Ken and his daughter performed the great experiment of which they had spoken. The apparatus had been built with part of Thon Ahrora's share of the treasure of diamond tokens, which Dick had forced her to accept, in the end.

Early one morning, crowded into the little, swift-flying vehicle in which Smith and the girl had visited the space-port, they set out for the lofty range of mountains in the east—it is impossible to identify these with any mountains of the present day; when Smith examined an atlas, he found the continental outlines strange to him; Bardon is located, he thinks, on a continent risen from what was once the floor of the Pacific.

"Father, dear, I'm certain that today we will succeed," Thon cried, after she had started the little ship toward their destination with a few musical notes. "Isn't it wonderful—after so many years of disappointment!"

"I'm not so sure, child," the old blind scientist said slowly. "Many times I have thought myself on the verge of success. For sixty years, you know, I have toiled to that one goal. For a quarter of a century I have known we must have that catalyst—though only a few ounces would be enough. I have failed a hundred times to synthesize it; I feel that we may fail again today. Then there is no hope; even most of the scouts

I sent to explore the unknown planets, as a last resort, have returned without an atom of the precious substance."

"Cheer up, dad!" the girl encouraged him. "I know we'll win! The experiment cannot fail!"

"What is the experiment?" Dick asked, for the second time.

"What is it that is now most necessary for the happiness of man?" Midos Ken replied with another question.

"I can't think of anything you lack," Smith said. "You control the weather. You synthesize food, or almost anything else you want, out of water vapor. You have conquered time and distance, with your television and interplanetary ships. You have eliminated most things that made life dangerous or unpleasant in the old world. There are no harmful insects, no disease germs—I haven't seen a real weed! Your people all enjoy freedom of a degree that was impossible in the old world, and luxuries that were beyond reach of our emperors. Crime, ignorance, and superstition are gone. I have seen none not strong of mind and body; none without every reason to be perfectly happy."

"How about myself?" the old man asked.

SMITH looked at him, was struck like a blow by the relentless marks of age upon him—the whiteness of his hair—the wrinkles that corrugated his noble face. There was a slight stoop of his shoulders—a thinness of his hands, and a nervousness that kept them always trembling a little.

"I am old," said Midos Ken. "All men grow old. There is only a taste of youth, of boundless strength and joy, and then their strength begins to fail. Their bodies stiffen and grow ugly as they weaken. And in a few years they die.

"Is it not a tragedy? The artist has but time to learn to ply his brush, before his hand is too palsied to hold it. The scientist can but learn to handle his tools, before his mind becomes too dull to understand them. The thinker can only begin to survey the wonders of the universe, before his brain decays.

"Is it not terrible, for a mind to know that it must die, slowly, and hideously? A swift death, in full strength and vigor, would be better than the slow decay of body and mind, that is age.

"Death is not so terrible, perhaps, to the lower animals. They do not foresee it. Their bodies are restored, in each new generation, more perfect than before. Death is not dreadful to an animal, to a body, for it is natural.

"But a mind is a higher thing than a mere physical body, dependent upon one as it is. It is capable of infinite growth and development, until it is killed by the decay of the body. That is why men have dreamed of immortality, and promised themselves another life beyond death. The mind cannot endure the thought of death."

"Then your great experiment is a search for the elixir of youth?" Dick asked, amazed.

"We are seeking to extend the life and the youth of man," said Midos Ken, "to give the mind full period for its development, so that men can drink the pure joy of life to the full, before they pass it, satisfied, and willing to go. So that the thinker may live in the keen vigor of youth until he has evolved his philosophy. So that the scientist may study deeply, and forge deliberately toward his goal, unhampered by age and the fear of age. So that the poet and the artist may give the world the full measure of his genius, before they leave

it. So, too, that great lovers may quaff their bliss untroubled by fear of the end, that great adventurers may roam the far worlds of the universe as long as the call of the unknown leads them!"

"A wonderful vision!" Dick mused, lost in a reverie of what such a discovery might bring.

"There isn't anything impossible about it, either," Thon Ahrora said practically. "For ages we have known that life is altogether chemical in nature, though the chemistry of it is very complex. All such changes in the body as growth, mature development, and age, are caused by the chemicals secreted by the various glands.

"Age is just as natural as growth. It is necessary, under the conditions of primeval life, in order that the old may give place to the young, allowing the improvement of the race. But now the human body has reached ultimate perfections. And the human mind needs a longer period of life than an animal body.

"Natural death does not accompany life universally. Many simple animals do not die—the mature adult merely divides, by the process of binary fission, forming two individuals. That is true, even, of the individual cells in the human body, which are immortal when grown in cultures outside the body.

"All that is needed to make eternal youth possible is a chemical which will neutralize the glandular secretions causing old age. We have isolated from a certain endocrine gland this substance which causes age. An injection of it made a subject die of old age in a single day!

"We know the formula of the compound which we must have to neutralize it, to cause immortal youth. A hundred times we have tried to make it by synthetic means. But always our atoms break down before the goal is reached. We must have a catalyst—an agent, you know, which aids a chemical reaction, without being itself affected.

"A few ounces of this catalyst would be enough to enable us to make enough of the elixir of youth, as you call it, to lengthen the days of all the trillions of the Galaxy! Father has had his agents scouring the planets for it in vain. Today, we are making a last attempt to synthesize it."

"Immortality! Endless youth!" Dick said, musingly. The idea was fascinating, wonderful.

"A great vision," said Midos Ken. "It might be a disaster to a primitive race, for it would tend to stop development. But now, mankind has reached the ultimate—there has been no upward progress in a hundred thousand years. There can be no advancement until men live longer, and have more time for accomplishment."

They reached the end of the trip. With a low, trilling note, Thon Ahrora brought the little flier down in a peaceful mountain valley, the white veil of a cataract flung from one of its wooded walls.

Below the fall was a huge, solitary building of glistening white metal, vast as a dirigible hangar. Thon drove the little craft through a wide door in its end, and they emerged inside the building.

An enormous machine filled the whole of the shed-like structure.

An immense platform of black, glistening, jet-like substance fifty feet wide, and four hundred, at least, in length, was supported on massive pillars, fifty feet above the floor. Underneath it was a maze of machinery—suggesting, to Dick, colossal dynamos, huge vacuum

tubes, and enormous tuning coils and variable condensers; that is, it somehow made him think of a radio receiver on a prodigious scale.

Above the black platform, at the end, was a great disk of green metal. And at the other was a similar disk of sapphire crystal, a foot thick and twenty in diameter, aglow with soft blue fires.

As they mounted by a stair to a little stage built against the wall of the huge building, overlooking the vast black table, Thon briefly explained the huge mechanism to Dick.

"All matter is electrical, you know," she began. "Its atoms are composed of protons, or positive charges of electricity, together with bound electrons, forming a nucleus, with free electrons revolving around it. The kind of atom, be it gold or hydrogen, is determined by the number of protons and electrons that make it up.

"We know the secret of the electron. We can strip them from the atom, and use their energy to heat our planets, and drive our ships through space. We can take the electrons of one substance apart, and put them together to make another.

"You know how the atom of radium breaks up, finally forming helium and lead. With such machines as this, we cause such changes to occur as we will. From water drawn from the fall outside, we can make food, clothing, metal, diamond—anything whose chemistry we have mastered. And the El Ray, which turns all substances back to water, rids us of all refuse, and replenishes the precious fluid in our oceans.

"Today we are trying once more to synthesize the catalyst we need so vitally."

She turned to a bench at the end of the stage that bore long banks of keys—thousands of them. Looking curiously at Dick, she began depressing the keys in intricate combinations, strong slender fingers flying over them. A deep rhythmic hum, vibrant and powerful, came from the apparatus beneath the enormous black table. The sapphire disk at its farther end glowed brighter, with intense, living fires. Throbbing energy seemed to pulse across from it to the green disk, like the electronic stream from the cathode of a vacuum tube.

"I'm going to show you how it works," Thon Ahrora said. "I'm going to make something for you."

She continued to study his head, his features, as if making a painting of him. Suddenly she made a surprising request.

"Will you please slip off your garment, for a moment?" she asked Dick.

He thinks he turned very red; he is glad that the girl was bent over her banks of keys at the moment, and did not see him. He turned from her, and thought swiftly, while pretending to be tugging at the strap. Evidently, ideas of modesty had changed a bit in two million years. "While in Rome, do as the Romans do," he muttered, fearing that a refusal would hurt her feelings as had his evident surprise when she had kissed him.

He unfastened the shoulder-strap of his single simple garment, and let it fall to his feet.

He tried to keep his face impassive as she had him turn from position to position, while she critically eyed his body, and continued to let her swift fingers play over the many rows of keys. But it was with distinct relief that he got back inside the scanty garment, when she signified that she was through.

Still the blue, radiant current of force seemed to

stream across from the sapphire disk to the one of green metal. A dense glowing condensation of azure luminosity had gathered midway between them, on the glistening surface of the black platform. Now she moved a final lever, and the blue gleam vanished. The crystal disk faded and the throbbing sound was hushed.

"They are finished," she said.

With childish eagerness, she moved a handle on the wall. A slender metal walk, a sort of lifting drawbridge, was dropped across from the high stage where they stood to the jet platform. Thon Ahrora led the way across, ran to the center of the vast, glistening surface.

Standing there, side by side, were three tiny statuettes of Smith, exquisitely finished and colored in all the hues of life. It is one of them that he put in the little black case, with his notes.

"See!" the girl cried, presenting him with one of them. "Aren't they lovely?"

"The rays are focused sharply, to build up the atoms in a predetermined spot," Midos Ken informed him. "Any object can be formed, directly—no manufacturing processes are necessary. It is even possible to plate a thin film of one metal over an object of another. Thon could build a space flyer on that platform, complete, provisioned and ready to leave the earth, merely by controlling the formation of the electronic energy into atoms, through this keyboard."

"Now for the experiment!" Thon cried, when she had ceased admiring the little statuette of Dick. They went back to the stage, and again she manipulated the banks of keys. She had cryptic notes before her, and held long consultations with Midos Ken, in terminology so technical that Dick made nothing of it.

HOUR after hour she labored, while the great hall rang with the deep, vibrant music of humming generators, and the great disk shimmered with the blue-violet radiance that streamed toward the green plate in a pure stream of force.

Again and again they returned to the great table of jet, to examine the results of the experiment. Always it had failed. They found only little piles of gray, ash-like substance, sometimes filled with tiny, glistening globules of fused metal.

It was terrible to Dick to see their slow waning of hope. He had come to feel deep affection for both of them; and he shared their vision of the boon they struggled to grant humanity.

"I cannot synthesize it," Thon admitted at length.

"It is hopeless," Midos Ken agreed.

"No! It isn't hopeless!" the girl rejoined, with unbroken confidence. "As you have said so often, Nature is infinite. We know the catalyst we seek is possible. Somewhere, Nature must have formed it!"

"If only we can find it!"

They returned to Bardon. That evening, they were sitting in the simple living room of Midos Ken's apartments in the silver tower. The fragrant breath of the night entered through wide windows. Soft, restful radiance streamed from the luminous green walls, over the long couches upon which they reclined.

Dick, through half-closed eyelids, had been admiring the slender form of Thon Ahrora, as she lay at full length on a rich, yet simple divan, staring dreamily at one of the little statuettes of Dick, which she had placed on a low, massive table of what looked like white-veined green marble, standing at the side of the room. She

had been discussing with her father the failure of the experiment.

"You can have those boxes of diamonds piled in yonder," Dick was saying, "if you need them to carry on the good work. To the last token!"

A low, guttural laugh rang behind him. A harsh, unpleasant voice spoke mockingly, jeeringly.

"Never mind! I'll take charge of the diamond tokens!"

Dick saw Thon whiten with sudden fear. Old Midos Ken had sprung erect beside his couch, holding his head as if trying in vain to see. He had heard the intruders an instant in advance of the others.

By the time the sneering speech was ended, Dick was on his feet.

His eyes met black, malignant orbs. A powerful man, clad in a brilliant crimson garment, with a girdle of black, was striding toward the center of the room. His heavy face, with jutting nose, and cruel sensuous mouth, was vaguely familiar to Dick.

Behind him stood a dozen soldierly figures—men in black, with scarlet belts, and long, glistening, ebony tubes. More were crowding through a broad, open window, stepping, evidently, from the end of a metal gangplank. It led, Dick knew instinctively, to some flying ship moored or floating close against the wall of the building.

Like Thon Ahrora and her father, he was petrified with surprise and sudden fear. Such a danger he had not dreamed of.

"A cool welcome!" the taunting voice rang out again. "Do homage, slaves! Do homage to Garo Nark, Lord of the Dark Star!"

Recollection flashed upon Dick of the amazing television picture he had seen upon the day of his coming, recollection of what Thon Ahrora had told him of this man, with his hatred of her and her father. And here he was in the very room, come across a hundred thousand light-years of space! Come to take the girl?

At the thought, Dick saw red. The man was striding forward with insolent confidence, only a few feet away. Dick sprang at him with panther-like quickness, swinging a right at that proud, evil face, with all the savage force born of scornful anger.

Garo Nark made no attempt to guard himself, but it is unlikely that he could have evaded that fierce blow if he had tried. It connected squarely on his jutting chin. The force of it carried him staggering backward, to crash upon the floor.

"How's that?" Dick demanded, staring belligerently at the row of black-clad men behind their fallen leader, who, apparently dazed with horror at what he had done, were raising their thick, jet-like tubes in a threatening manner.

CHAPTER IV

The Man from the Green Star

AFTER a moment, a tiny, bony man, with a scraggy yellow beard and glittering, greenish, snake-like eyes, stepped forward importantly. A second in command. He glanced at the still body of Garo Nark, jerked out a word which brought two men up to pick him up.

Dick held his ground over the fallen figure. He shook his fist in the thin man's face.

"Stand back!" he muttered. "Or I'll smash your face!"

He was beside himself with anger, filled with a curious intoxication of elation at having felled Garo Nark. Caution was forgotten.

The little, scrawny man voiced a quick order to the soldiers behind him, who were uncertainly holding their black tubes pointed toward Dick. At the word, they steadied the weapons, which looked like cylinders of jet crystal two inches thick and six feet long. Their fingers sought sliding rings of silver, about the middle of the tubes. Violet fire seemed to glow deep within the crystal bars.

"Oh, Dick!" Thon cried. "They will kill you! Come back!"

She ran forward, seized his arm, pulled him back.

The scraggy man jerked out another order, and the men lowered the black crystal rods. The violet flames died in them.

The two men in black lifted Garo Nark to his feet. One of them produced a little brown pellet, which he ground between his fingers, and held under the nostrils of the unconscious man. After a moment, a tremor shook his great body; he groaned and turned his head aside. In an instant more he seemed to have fully recovered his senses.

Thon Ahrora still stood beside Dick, grasping his arm. Her strong fingers were closed about it almost painfully. Dick looked down at her with what he tried to make a reassuring smile. Her blue eyes flashed back courage.

Garo Nark seemed to be seething with rage. Glaring evilly at Dick, he bent to whisper something to the scrawny, green-eyed man, whom he called Pelug.

"So you are the fish that our blind fool caught out of the past, eh?" he sneered at Dick. "A savage who fights with his hands, eh? Well, we'll show you the weapons that modern men use!"

He grunted to a man behind him, who raised a long bar of black crystal. Violet flame pulsed inside it, through its length.

"The El Ray," the jeering giant went on. "We will turn your feet to water with that! I dare say we can demonstrate the use of half a dozen weapons upon you, before you are used up!"

"You are the great historian, eh, who wrote the history that earned so much? Ha! I wager our pretty Thon wrote the book for you! Well, I shall take the lady and the diamonds. Yes, and show you how our weapons work!"

Dick's blood was boiling under the taunts. He longed for a revolver, a knife, for any sort of a weapon. He burned with a hot desire to send his fist crashing against that swollen jaw once more. But Thon's firm grasp on his arm restrained his mad anger. He grinned with savage joy when the gigantic Garo Nark had to pause to spit blood.

The black, evilly blazing eyes of the giant turned to the slight figure of Thon Ahrora.

"Yes, my darling Thon," his harsh jeering tones continued mockingly, "you are coming with me to the Dark Star! To be one of my queens! No, your father will not grieve for you! He will never think of you again! For now you are going to see him melt into water, beneath the El Ray!"

The Lord of the Dark Star turned to hiss an order to the scrawny Pelug.

At the instant, Dick's eye caught a movement from Midos Ken. The old scientist, with one single motion, snatched from his pocket in his dark-green garment a long, slender vial or tube, which he held hidden under his hand. In the glimpse Dick had of it, it seemed utterly black, seemed to absorb all light that struck it. The motion had been cautious, not even the soldiers, listening to the words of Garo Nark, had noted it.

"You wonder, perhaps, how I come here, from the planet I rule?" the Lord of the Dark Star addressed Midos Ken. "Before I turn you to a cloud of steam, I shall have you know that you are not the only scientist in the Galaxy. Our new war fliers are equipped with K-ray rockets that will drive them through the distance in a month, even if we cannot ride the ray from planet to planet.

"Oh, we have science upon the Dark Star! Your passing, unfortunate as it is, will not wholly blot the light of learning from the universe! And how did we slip through the Patrol, you wonder? Our new fliers can make circles about the clumsy vessels of the Union! In fact, they did not even see us! My scientists have developed a new substance that reflects no light at all. Our ships are armored with that. It made them invisible, in the darkness of space!

"Something more that you did not discover, Midos Ken! And a wonderful thing. Even a man, with his garments and his body painted with it, would be almost invisible, in the proper surroundings. So you are not the only scientist!"

Garo Nark was standing forward boldly, flanked by his men, their El Ray tubes raised to execute his threats. Thon Ahrra still held Dick's arm, as if to hold him from unwise violence.

Midos Ken still stood beside his couch, erect and motionless. He had not moved or spoken. His calm, blind face had shown no feeling, under either the threats or the taunts of the pirate emperor. The black tube he had so unobtrusively snatched from his pocket was hidden in the hand hanging still at his side.

But Dick heard suddenly a tinkle of shattering glass. He knew that the old scientist had dropped the little vial upon the floor.

"Fire!" Garo Nark shouted at the same instant to his men.

Then blackness came suddenly around Dick. Absolute darkness, complete, indescribable. It pressed upon him in a wall of rayless obscurity. Stunned, bewildered, terrified, he clapped a hand to his eyes. It made no change—there was no faintest ray of light for his hand to stop.

A clatter reached his ears through the pall of utter midnight. A soldier must have dropped his weapon in surprise. Shouts of confusion and fear came from the men.

"Fire!" Garo Nark shouted again, apparently undismayed.

"Come!" Thon uttered a voiceless whisper in Dick's ear. Tugging at his arm, she led him swiftly to the side of the room. "Quietly!" she added. "Father is used to the dark. He can find the way alone!"

A low laugh came from behind them, from Midos Ken. "No good to fire, Nark," he said, speaking for the first time. "I have exhausted the ether about us. No electromagnetic radiation can reach through an inch of this darkness! And who is the scientist now?"

Garo Nark was urging his men forward. There were

shouts, sounds of motions. Men were running against each other, seizing one another, stumbling over furniture.

Then Thon and Dick had reached a sort of trap-door in the corner of the room. Hidden as it was, Dick had not learned of it before. It sprang open to the girl's touch. She guided Dick through. He dropped to a floor ten feet beneath, caught the girl in his arms as she fell after him.

Another instant, and Midos Ken, to whom the darkness made no difference, had dropped cat-like and silent beside them. They hurried off down a long, sloping passage. A hundred feet, or more, they had gone, before they stepped from a solid wall of dense blackness into the soft green light that fell from the luminous walls of the narrow corridor.

They reached a tiny, windowless chamber at the end of the passage, unfurnished save for a bench along one wall, and a television device built into the other. Midos Ken put the latter into operation; spoke loudly into it.

"I've called the Union Patrol," he said, turning. "My little cloud of darkness will last five minutes. The fliers will be here in ten. Garo Nark will have no time to look for the hidden door that leads here—he may think we have vanished with some scientific trick."

For a dozen minutes, they waited in tense, anxious silence. Thon was staring intently at the dark television screen on the wall opposite from where she sat. Midos Ken was listening intently. He seemed to be able to tell the movements of the pirates by the sounds they made, though Dick could hear nothing. His hearing seemed preternaturally acute; Dick wondered if he had a sort of microphone concealed about his person.

"The darkness is gone," the blind man whispered. "Garo Nark is telling his hellions to search for us." For minutes he was silent. "They are carrying out the chests of diamond tokens," he said again. Then he cried out, almost in alarm, "A man is near the hidden door!"

A SOFT cry escaped Thon Ahrra. The television screen had brightened. Upon it was the bust of a man, in a curious uniform. Behind him was the complicated apparatus of the bridge of a space cruiser.

"We are above Bardon," the officer said briskly. "Was the call a mistake? Or have the pirates gone?"

"They are still here!" Midos Ken cried. "I hear them!"

"Their ship is covered with a substance that makes it almost invisible," Dick spoke up, remembering the leering boasts of the Lord of the Dark Star.

"Their lookouts must have seen the cruiser," Midos Ken spoke quickly. "I hear them rushing from the room. Make haste!"

The man on the screen turned, spoke orders to unseen assistants, spun wheels and dials on the apparatus that filled his bridge. It was minutes before he turned back.

"My detectors picked up the etheric disturbances from their generators," he said. "So I know they got past us. But we could see nothing. And they got quickly beyond the range of the detectors."

"It is Garo Nark, Lord of the Dark Star!" Midos Ken cried. "Something must be done! Is that prince of pirates to rule the Galaxy?"

"Word will be passed to the Union Patrol captains," the officer said, "that he is cruising in this part of the Galaxy. But if his ship is invisible and as speedy as it

seemed to be when he shot out past us a moment ago—well, I see little hope!”

A few minutes later the three had climbed back through the hidden door. The apartment was empty, deserted. Dick and Thon ran to the room where the diamond tokens had been. They were gone! Only a glittering handful remained, scattered across the floor, which the pirates had spilled and had had no time to pick up.

“No hope now, for a cruise through the universe, to find the catalyst!” Midos Ken groaned.

“Why?” asked Dick. “I thought you said that Thon could build our space ship out of nothing.”

“Not out of nothing,” said the girl. “Out of energy. And we can’t have the energy without the tokens to pay for it!”

Three days later a stranger entered the apartment and walked up to Midos Ken. Each placed his right hand on the other’s shoulder, in salutation. Dick liked the newcomer at a glance.

Tall he was, and powerfully built. His skin was bronzed by the rays of a thousand suns and the storms of a thousand savage planets. Dauntless courage and ironic humor gleamed in his wide-set brown eyes. His hair, long, jet-black, glistening, fell to his shoulders. It was held from his face by a broad band of vividly blue, velvet-like stuff, fastened about his forehead.

His sleeveless garment, fastened over the left shoulder and falling to the knees, in the universal fashion, was of some soft, buff-colored material resembling buckskin—it was, Dick supposed, the carefully dressed hide of some creature of a far-off planet. Little round blue shells, resembling the sapphire tokens of exchange, were sewn upon it in curious patterns, for ornament. And a wide, crimson sash was bound about the middle, holding it to his waist. In this belt was stuck the small, blackish rod of a miniature El Ray, and another sheathed instrument that Dick did not recognize.

This slight, scanty leathern garment revealed the tanned limbs, mighty but supple, and the broad, powerful shoulders of the stranger. Dick admired him at once for his evident strength, and for the air of confident resource and capability that he carried, and he liked him for the glow of courage and humor in his eyes.

The stranger turned from her father to Thon Ahrra, greeting the lovely girl with evident admiration, so ardent, simple and sincere, that Dick felt jealous and sympathetic at the same time.

“This is Don Galeen,” she presented him to Dick. “An old friend of ours. An adventurer. A scout of space. He is one of those whom father sent to search the far planets for the marvelous catalyst—the last to return! All the others have failed.”

As she spoke, the bronzed giant stepped forward, and placed his hardened, mighty hand upon Dick’s shoulder. Dick returned the salutation, marveling at the iron muscles that rippled beneath his fingers.

“And Dick Smith,” she introduced him, “a man father brought from the far past——”

“But tell me, Don!” Midos Ken broke in eagerly. “What of your quest? Did you, too, come back with empty hands?”

Don Galeen looked at him, spoke slowly. “No, I brought nothing back. But perhaps I was not wholly unsuccessful. It is a long story. And I am tired. For two days I have ridden the K-ray. Two hundred thousand light-years! And I came right over on the sub-

way from the space-port. I could do with something to eat and drink while I speak.”

“You have found it!” the aged man cried, in excitement.

“I did, though I did not see it,” Don said. “At least, the indicator that you gave me showed that I was near it. But it is in the hands of beings who are not eager to lose it. I could not get to see it. In fact, I was lucky to get away myself!”

Some vision of horror seemed to flash searingly across his mind. His face twitched with the pain of some memory; his mighty hands clenched till his corded muscles cracked, and knuckles whitened under his tan.

With a word to Don to take one of the reclining couches, Thon stepped toward the side of the high, green-walled room, and voiced a series of the melodious notes, with which the people of futurity controlled their mechanical servants. A concealed panel opened, and a long table on casters rolled out to the center of the room. The crystal dishes, which loaded it, were piled high with the amazing variety of delicious synthetic foods. Tall flagons held several kinds of delightful drinks.

The reclining couches moved automatically to places at the sides of the table. Don Galeen gulped down a huge goblet of violet-colored wine, and began his story:

“I was to explore the outer regions of the Galaxy, in Perseus, you know. The first day I rode the K-ray to Qunaro, in the midst of the vast stellar empire of the double star cluster we can see from earth. There I had to wait another day for a K-ray car to Zulon, a small sun on the very rim of the watch-shaped spiral of the Galaxy.

“There, on the twelfth planet of Zulon, I had a one-man space flier built according to the plans you had given me. I paid for it with the tokens you gave me.”

“You went alone!” Thon cried, compassion in her voice. “It must be terrible to be alone in the void! No woods or seas or mountains! No sound! Only the tiny, cramped machine. And the vast darkness of space, with the suns gleaming in it, cold and far away!”

“A bit lonely, perhaps,” Don admitted. “But I am used to it. Once I took a partner. We were looking for a space liner that had been lost off Canopus. Her guiding apparatus had failed, and she had run out of the K-ray beam that drove her. We were out together nine months before we found the ship, with all dead upon her. And the partner and I were at each other’s throats before we got back. You know, I smoke the *tian*—years ago I was on the hot, jungle-ridden inner planet of Sirius, driving the huge monsters they use for beasts of burden there; and like the other drivers, I was forced to use the drug, to escape the fearful dangers of those steaming jungles. And my partner couldn’t stand the fumes of the drug, in the narrow compartments of the ship—and I couldn’t do without it. Since, I have always gone alone.”

He paused to swallow another full goblet of fragrant drink.

“But tell me of your trip! Where did you find the catalyst?” Midos Ken urged him.

Don Galeen grinned. “All right, I’ll try to stick to the subject,” he continued. “Two years ago I flew out from the twelfth planet of Zulon in the little flier. The Galaxy behind me was a broad band of light—for I saw its disk edge-wise. Before me space was dark, except for the tiny pin-points of the few, far-scattered suns I was to explore.

"After two weeks under full power, I came to the first, a small red star, far older than our sun. It had no planets, so I was unable to land. But it was a beautiful thing. Rings about it, like Saturn's. Three of them, blue as sapphire. A wonderful sight! The dull red ball of the dying sun was like a huge, round ruby. And the three blue rings were spinning around it."

ONE of the broad windows had swung open a moment before, as if moved by a breath of wind. Dick had noted it idly, thinking how wonderful was this climate that permitted windows to be so huge, and to be kept open except during the rains, which came at periodic intervals, fixed in advance by the directors of the weather-control machines. Now, as Don paused, he fancied he heard a step behind him. He turned nervously, remembering the unexpected pirate raid. But the vast, green-walled room seemed empty of strangers.

"A week later," Don went on, "I arrived at a double star—two huge suns, spinning about their common center of gravity. They, too, were beautiful. One was a bright green. Another was a rich flame-orange. But double systems, you know, rarely have planets. I went on.

"Three months I spent in a voyage to a huge blue star, a young, flaming giant of a sun. It had a score of planets. I explored them one by one, watching the little red needle of the indicator you had given me. The outer planets were frozen. One of them had queer life upon it—moving things that looked like glittering crystals of ice, yards across. I left them hastily.

"On an inner planet I found traces of a civilized life. There were the gaunt ruins of colossal, time-worn buildings—the wrecks of huge machines, eroded beyond recognition and enormous mounds and ditches that must have been part of an irrigation system to conserve the last water of the planet. For it was a desert world. Endless wastes of white sand were drifted upon the ruins of the cities. Water was gone; even the atmosphere had mostly vanished into space."

"Traces of civilized life had been found upon nearly a hundred planets," Thon put in, for Dick's benefit. "Fairly intelligent creatures, still living, were discovered on a dozen. But none had progressed so far as man. Not being able to leave their dying planets, they had always expired with them. In fact, if the beings of another world had been able to conquer space before men were, they would probably have spread through the Galaxy, and nipped human development in the bud."

"Please let him get on with the story, daughter," Midos Ken implored.

"Life still existed upon planets closer to the huge blue sun," Don continued. "They were worlds of weird jungle, with huge and monstrous creatures crashing across them; worlds where the sun was hot and water and atmosphere abundant; where life was a broad, swift stream, plunging fast over the brink of death. Incredible how fast things grew there—by eating other things.

"The planets with orbits within these were burned by the rays of the sun, until life could not exist upon them—barren, burned worlds, and the inmost was yet glowing, with red, intense light. It was almost a second sun.

"But upon all these worlds, which I visited one by one, I found no trace of the substance I sought. The red needle of the detector was undisturbed.

"After venturing as near the innermost planet as I dared, I went on toward a quadruple star—two binaries

spinning about each other. One pair red and blue, the other orange and white, my telescope showed them. But I never reached them.

"For I came upon the Green Star.

"It is but an accident that I came upon it, there in the inconceivable vastness of extra-galactic space. Its feeble gleam was visible hardly half a light-year, in my best instrument. I approached it cautiously, wondering. Never had I seen such a star.

"It is really merely a planet, drifting alone in space. Without a sun. It is bitterly, bleakly cold, and it is dark. But not at the absolute zero, and not completely dark. For the surface of it glows with a green luminosity. Its barren rocks and snow-covered wastes gleam with cold green fire. Even its thin, chill air is filled with the frozen light. The sky glows with feeble emerald radiance.

"The light is due to a radioactivity within that strange planet. For when I came near it, the parts of the machine glowed with green. And even my body, and my hands and arms shone with green fire.

"That radioactivity is not good for human life, I know. I will not tell you now of what it did to me—it is not pleasant to talk about."

"But the catalyst!" Midos Ken broke in. "Did you find it?"

"The red needle of the indicator moved before I landed on those green, glowing wastes of snow," Don said. "I followed the needle. And it led me into a hellish place.

"I can't describe it!

"The human mind cannot conceive of anything beyond its own experience. We can describe things only by telling how they are like other things. I can give you no idea of the world I stumbled upon.

"Beings of another kind!

"They are so unlike anything we know that I can give you no idea of them. But they are intelligent in a way—perhaps nearly as much so as man. They rule a part of the Green Star. And the catalyst is in one of their—well, cities is the best word I can find. They guard it well. My attempt to reach it nearly cost me my life. It must be something they treasure.

"But I must try to give you a better idea of those beings. Can you imagine slender green worms, yards long, covered with scales that glitter like flakes of emerald? They have faces, with lidless eyes that are bright and gleaming—and red, crimson, glowing like rubies. And they have wings, long and frail and glistening with iridescent color. And tentacles, that grow near the eyes, on what I called a face, that they use for hands.

"Can you imagine them?

"Even if you can, you will not see them as they are. You see I have only tried to tell what they are like—and they really are like nothing that I know.

"And their cities, their habitations, are vast cones of cold blue flame, in which they swim. They do not use machinery as we do. But they seem to have strange power over light—or they control strange forces that are accompanied by a display of light.

"For days I hung about, trying to study them. The green fire, the radiation of the core of the planet, was destroying my body. Then I ventured too near the cone of blue flame where they keep the catalyst I was after.

"An arm of purple fire—that is the best way I can say it—an arm of violet-red light reached out and snatched down the flier. It drew me into the cone of

blue flame. I'll never recover from the horror of what happened before I managed to jerk away, with all power on. And yet I can't explain it!"

He nervously gulped down another glass of purple wine. With the others staring intently at the rugged, bronzed face, which now had a shadow of unutterable horror upon it, he sat in silence for a long minute.

Then suddenly, Don Galeen laughed uncertainly. He fumbled in a pocket of his soft, leathern garment, produced a tiny tube of heavy black wood, polished with much handling, and a little crystal vial, from which he shook a tiny green pellet. Carefully, he rolled the pellet into the end of the wooden tube, and covered it with a sort of metal stopper.

"I'm at my *tian* again," he grinned. "I'd never have lived to get back, without it. It makes me forget." He turned, grinning, at the lovely girl lying on the divan across the table. "You ought to try it, sometime, Thon. Wonderful dreams, it gives you!"

"Not me!" the girl cried. "I can't even stand the scent of it. I'm like your old partner!" she smiled.

Don Galeen inhaled through the black wooden tube, several times. He sighed with deep satisfaction, and settled back on the couch. A faint streamer of greenish vapor curled from his nostrils. His eyes lost their recent horror, grew dreamy, closed. His head dropped to the couch. He slept, breathing slowly and regularly.

A strange look came over his rough, bronzed face. A smile of delight, of wonderful contentment. It was the look of a dreamer who visions golden lands, with fairy cities on purple hills, where he strives and loves and follows the old call of adventure.

Then Dick caught a whiff of the green vapor. It was acrid, pungent, but laden with a cloying sweetness that was almost sickening. He coughed and turned hurriedly away.

"The odor nauseates me," Thon said, smiling at Dick. "I feel sorry for the partner he spoke of. Suppose we go for a walk in the wood below the hill. Come, Dad. He will sleep there for hours."

"All right, Thon," Midos Ken agreed. "We must talk over what he said. The catalyst is found at last, on this strange world. We must make our plans to go there and get it. Bargain with the things that guard it, if they will. Take it by force if we must. Humanity must have it!"

They left the room.

As they were going out, Dick thought he saw a shadow move before him. It was nothing that he could see, but more as if some invisible thing had come between his eye and the wall. But when he blinked to clear his eyes and looked again, he could see nothing amiss.

Then Thon took his hand, with the simple confidence of a child, and led him from the room. He decided that the trouble had been in his eyes, dismissed his fear in the joy of Thon's sweet comradeship.

It was two hours later when they returned.

Don Galeen was gone!

On the table was a square of the white material used for writing. Upon it these words were hastily inscribed:

To Thon Ahrrora and Midos Ken:

Who is the greater in science now? Do you forget what I told you of invisibility? I hold your lives in my hand.

If you want this man, and the knowledge he has, come for him to the Dark Star.

Garó Nark, Lord of the Dark Star.

CHAPTER V

The Astounding Form

"I KNEW that Nark was still about here," Midos Ken said when Thon had read the boasting message. "Several times I have heard a person moving about, whom you did not see. But I thought it protection enough to keep my weapons ready, and to set up in the laboratory an instrument which broadcasts interfering waves to keep El Rays from operating within a mile or so of it—that was to keep Mark from striking us down without warning.

"I was a fool. I thought my science equal to that of the Dark Star. Nark was invisible. But to me, all things are invisible, and I could tell by my sense of hearing when he was near. I was planning a trap for him.

"But now he has ruined us. In my excitement about his story, about the discovery of the catalyst, I forgot to listen for our enemy. We have lost Don Galeen—and with him everything!"

"Once I fancied that I heard something in the room," Dick said. "And when we were going out, it seemed that I saw a sort of shadow on the wall. But when I looked again it was gone."

"Nark does possess the secret of invisibility—or at least of semi-invisibility. He said he had a substance that reflected no light at all. That would make a space flier invisible in the darkness of space. But a man covered with it would show as a dark shadow against a light colored wall. Possibly his scientists have developed a pigment which changes its color and its brightness to match surrounding objects, like a chameleon. Anything covered with such a pigment would be almost invisible against the smooth green walls of this room, for example. To be truly invisible, an object must be perfectly transparent, and neither reflect nor refract light that strikes it or passes through it.

"But we haven't lost everything, Dad," Thon spoke up. "We are much better off, in fact, than we were before Don came. We know that the catalyst exists, and we know approximately where. We must plan to carry on!"

"Come to the Dark Star, Nark said!" Dick broke in.

"Let's do it! We can find Don Galeen, and take him on with us after the catalyst!"

"We shall do it!" Thon cried, her keen eyes flashing him a glance that made his heart leap faster. A wonderful girl! He could attempt a trip to the edge of the universe to please such a one as she!

"But Garó Nark took all the tokens," Midos Ken objected. "We can do nothing without a space flier. And to build such a powerful ship as we require would be tremendously expensive."

Dick's heart swelled. He had kept his good news to himself, waiting to surprise them. This seemed the time. "No worry about that," he said. "I was back to the publications department office yesterday evening. Our book is still selling, the royalties still pouring in. It will earn as much again as Garó Nark took, they told me."

"Oh! You wonderful dear!" Thon cried.

She turned to him in delight, as if to throw her arms about him. Then, remembering his surprise at her

previous impulsive embrace, she flushed, and stood still.

Dick rose to the occasion. Swiftly he put a strong arm about her slender shoulders, drew her lithe body to him, put his lips to hers. A curious intoxication of delight filled him at the thrill of contact with her warm, strong body. But he fought it back, released her quickly.

She stood there before him, breathless, her white shoulders trembling oddly, studying his face with deep blue eyes.

Dick flushed a little at his audacity. Probably he had kissed a few girls during his college days. But certainly never with such emotions as now surged through him.

Suddenly he recalled the powerful form of Don Galeen, the admiration that had filled his brown eyes as he looked at Thon. And the solicitude with which the girl had waited upon him. They were old friends, she had said.

With an effort, Dick grinned. "Turn about is fair play!" he said.

Deep pain came into Thon's questioning eyes. "Then you were merely playing with me?" she demanded in a hurt voice.

"No, of course not," Dick said. Other words, of confession and pleading, rushed to his tongue. But thinking of Don Galeen, a prisoner in the hands of a pirate of space, he did not say them.

Thon, after a minute, dropped her eyes from his—sadly, Dick thought. He wondered if she thought of Don Galeen.

"Then there are two courses of action before us," Midos Ken spoke abruptly, "if you can finance the building of a space flier. We can go to the Dark Star to attempt the rescue of Don. Or we can try to find the Green Star, and face its unknown perils without him."

"Wouldn't it be better to rescue Don—if it is possible?" Dick suggested. "We might not be able to find the Green Star without him. And even if we found it—those things he told about—I don't like to meet them without knowing more about them. Then I hate to see such a man abandoned to Garo Nark."

Thon's flashing eyes—with a hint of tears glittering in them—applauded him. And Dick, thinking of the rescue of Don, jumped at a conclusion for which he afterwards cursed himself.

Midos Ken and Thon set immediately about planning the new ship of space. It took several weeks. The tables of the apartment were littered with strange drawing instruments, and with sheets of the stiff, white, writing material, covered with designs and calculations. Thon, of course, made all the actual plans. But each feature of the new flier was decided upon only after careful discussion with her father. And many of the inventions of the blind scientist were to be incorporated in it. Despite its small size, the machine was to be of the swiftest, and equipped with a formidable armament.

Dick was anxious about another pirate raid. Midos Ken said that the ships of Garo Nark were probably still hanging near. But his supernormal hearing, he thought, would detect any invisible man who tried to enter their rooms again. And he was certain that he could defeat any attack that might be made upon them.

The flier was to be built on the huge machine in the mountain valley, where they had tried in vain to synthesize the vital catalyst. The royalties for Dick's his-

tory had come in as promised and funds were not lacking.

At last the plans were ready. Then Thon spent several days with works of reference, composing long columns of figures from the diagrams. These functions would be set up on the banks of keys that controlled the association of electronic energy into atoms in the field of force between the great disks.

On the day the plans were completely transformed into these columns of integers, the three of them flew out again to the range of mountains in the east. Again, Thon drove the little flier into the gigantic, shed-like building.

They climbed to the stage which overlooked the broad jet platform, with the disk of green metal at one end, and that of gleaming sapphire above the other. The deep, vibrant hum rose again from throbbing generators, and the blue disk shimmered with the pulsing energy that streamed across toward the green metal plate.

With the sheets of functions before her, Thon let her nimble fingers play furiously across the long rows of keys.

A glowing condensation of blue light came into being upon the jet table. And in it grew the ghostly outline of a slender, cigar-shaped ship. Steadily, it grew more real, more substantial, with part upon part growing upon it. The ship was formed as if it had crystallized from the throbbing mist of blue flame.

IN a few hours the hull was complete. It was cylindrical, tapering, ten feet through and fifty in length. It had a metallic gleam, yet it was red. Not the dull red of copper, but bright crimson.

"The red is an armor of neutronic matter," Midos Ken told him. "Such as is found in the cores of some stars such as the dark companion of Sirius. We use only an impalpably thin film of it—a cubic inch weighs millions of tons. It is indestructible. No projectile of ordinary matter can penetrate it. And it does not conduct ordinary etheric energy. The temperature within will stay the same, whether we traverse the absolute cold of space, or venture into the flaming atmosphere of a sun. No ray or other weapon known to science will act upon it. A discovery of mine. It has never been used before."

"And what of the propulsion?" Dick inquired. The blood-red hull was unbroken—no propellers or other means of moving it were in view.

"It is driven by the reaction of a K-ray generator," Midos Ken explained. "The K-ray is a vibration set up by the particles that make up protons and electrons, as light is composed of waves set up by changes in electronic orbits. Gravitation is a force of the same order. It penetrates all substances, and traverses the known universe with instantaneous speed.

"Thon took you to see the space-port on the mountain. From the generators mounted there, K-rays are sent like rivers of force to stations on other planets. And the cars or ships are driven down these rivers of force, propelled by the resistless force of the K-ray. They can cross the Galaxy in a week.

"But a smaller ship, like ours, has no generator behind it, to drive it on a stream of force. We carry our generators on board. When the K-rays jet out in one direction, the ship is driven in the other by reaction. The same principle as the rocket—or as the recoil of a gun.

"By a sort of reflection, the tremendous force of the

ray is applied alike to every atom of matter in the flier. If it were not, the force of acceleration would kill the passengers.*

"These small fliers, carrying their own power plants, are slow in comparison with the huge liners that ride the beams between the space ports. It would take even this one month to cross the Galaxy. And our generators are the most powerful that have ever been installed on a ship—that is, unless Garo Nark has me bested in this particular: his invisible fliers seem very fast."

"That all sounds good enough," Dick agreed. "It ought to be some little ship! And if we happen into a scrap, say on the Dark Star, or with those things Don Galeen told about on the Green Star, can we take care of ourselves?"

"We are installing a powerful El Ray generator," Midos Ken told him. "That would be useful to sweep down jungles, or armies with primitive equipment. It would clear a circle of ten miles radius about the ship in thirty seconds. We shall carry some of my bombs that make the cloud of darkness, you know—the ether-exhausting bombs. They are good for defense. And I have another scientific trick or two ready in case we meet Garo Nark!"

"Good! It's lots of fun to sock him on the face, of course. But we really should have something more scientific. Wish I had a good automatic!"

"Automatic?" Midos Ken inquired.

"Automatic pistol. A weapon of my age. A sort of metal tube. Chemicals were burned in it to make expanding gases which forced metal slugs out at high speed. Deadly, at a few yards range."

Midos Ken reflected. "You may need to fight," he said presently. "You must have a weapon. And I have devised something that you could use that would be new to Garo Nark. It can be made in a form similar to your old weapon, so you can use it with the same instinctive acts. Can you make Thon a drawing of your old 'automatic'?"

Dick sketched the familiar weapon. Midos Ken handed the drawing to his daughter, gave her a few instructions.

"I will condense the weapon for you in the ship," she told Dick. "You will find it behind a sliding panel in

your stateroom."

"You will find it much like your familiar arm in appearance," Midos Ken said, as Thon bent over the keys again. "You will use it in the same way—by pointing it and pulling the trigger. It will fire a little purple spark, a tiny pellet weighted with nutronium to carry it far and straight. When the pellet strikes any hard object it will be shattered. Then the substances in it will cause the sudden disintegration of any atoms near it, causing a sharp explosion."

"It is not very powerful—or the atomic explosions would make it dangerous to use. Better not shoot at anything closer than twenty yards, however. It is good for a range of about ten miles, without elevating the aim. A thousand pellets are carried in a magazine in the handle, and Thon will condense you a hundred extra magazines in the same compartment with the gun."

"Gosh!" was all Dick said, struck again with the wonder of this age where things men wanted were condensed from the electrons freed from atoms of hydrogen and oxygen—and turned back by the El Ray into water when men had used them.

"What are we going to call the ship?" he inquired presently.

"What would you suggest?" asked Midos Ken.

"Let's name her the *Ahrora*," Dick said. "After Thon."

The girl objected laughingly, but Dick was firm. And the slender, bright-red vessel became the *Ahrora*.

"Do you hear anything unusual?" old Midos Ken asked Dick a few minutes later.

Dick listened. At first he could distinguish no unusual sound. Then he heard a low, muttering growl.

"Nothing but thunder," he said. "Must be a storm coming."

"We don't have storms," said Midos Ken. "The weather-control prevents such erratic disturbances. And it is not even time for the next rain—and the rains take place without electrical phenomena."

"I'll swear that's thunder!" Dick cried.

He ran down the steps from the stage where Thon was still operating the great keyboard, and out through the wide door of the vast building. The peaceful,

*Since I finished this condensed narrative based upon the notes which Richard Smith sent me, covering his experiences in the world of distant futurity, a work has been published which throws new light upon the astounding force which Smith terms the K-ray—"The Dynamic Universe," by James Mackaye (Charles Scribner's Sons, New York).

While Mackaye's rather startling theory has perhaps not yet gained widespread acceptance, I am inclined to credit it, because it seems in full accord with what Smith writes of the "K-ray."

Beginning with a new interpretation of Einstein's relativity, Mackaye postulates that all matter is only a form of radiation or vibratory energy, and that gravitation is an effect of radiation. Incidentally, Mackaye's idea of the structure of matter is quite in agreement with Smith's accounts of "materializing" objects from pure energy, by condensation of protons and electrons.

Mackaye believes that the much-maligned "ether," which was invented as a hypothetical medium to explain the transmission of electromagnetic and gravitational force through empty space, is a form of radiation, having a very short wave-length, and pervading all the universe. These short vibrations exert a pressure upon all matter which they strike—and are partly absorbed as they do so.

Thus, the mass of the sun cuts off part of these radiations coming toward the earth from that direction. Consequently, the radiation-pressure on the earth is unbalanced, and the vibrations coming in full force from the opposite direction push the earth toward the sun.

Again, the matter in the earth absorbs some of these "gravity waves," while those coming from above are not interfered with. We are then pushed against the earth harder than we are pushed away from it—and we call the effect the "pull" of gravity.

The action, of course, is mutual, since the earth cuts off a small part of the pressure-producing radiation from the sun, and each of us shields the earth from a tiny amount of it—causing the sun to be "attracted" by the earth, and the earth to be "attracted" by each human being, approximately as Newton's law states the case.

The revolutionary part of the theory is that gravitation is a radiation, and that it is a "push" instead of a "pull," a pressure instead of an attraction.

I have again examined the text of Richard Smith's notes, in the advance copies of the complete work, "A Vision of Futurity," which have just reached me from the publishers—the volume will probably be on sale very shortly after this is printed. And the examination

in the light of the new theory put forward in "The Dynamic Universe," assures me that Smith's "K-ray" is merely an artificial beam of this gravity-producing radiation, or of a very similar vibration.

The gigantic "K-ray" generators at the "space-ports" are merely projectors of titanic rays of this pressure-exerting force, which focus their power upon the ships, to whisk them through the universe at velocities almost inconceivable. Since the pressure is applied equally to every atom of matter within the ships, and since there is practically no resistance save inertia, it is easy to see that the dangerous effects of acceleration by ordinary means are eliminated.

The working of the smaller "K-ray" projectors carried on the ships themselves must be slightly different. A well-known law of physics states that for every action there is an equal and opposite reaction. Consequently, when a pressure-producing ray is projected backward from a ship in space, there will be an equal thrust forward upon the generator. And, of course, if high velocities and accelerations are to be attained, means must be found, by the use of auxiliary "K-ray" apparatus, to transmit this forward thrust evenly to every particle of matter in the ship, to avoid the crushing effect of any change of speed or direction—this, we know, was accomplished in the *Ahrora*.

And this artificially generated "K-ray," or pressure-radiation, is apparently the basis of the extraordinary television communication, with which the far-flung worlds of the future world kept—or should one say "will keep"—in touch. Given such a force, reaching instantaneously through the universe as it must—and I am sure that it is instantaneous, from Smith's notes, if not from Mackaye's work—and given that that force can be artificially generated and controlled, there is no apparent difficulty inherent in utilizing it for telegraphic or television communication, by the simple adaptation of means already known.

I must express deep gratitude to Mr. Mackaye for the timely appearance of his work, for it has served to strengthen the interpretation of Richard Smith's narrative, in terms of the science of our own age, at a point at which it seemed almost to contradict the older theories which Mr. Mackaye's magnificent hypothesis must soon supersede.

And I am confident that, with the passage of time, the slow realization of the civilization portrayed in "A Vision of Futurity," and briefly sketched in this condensed version, will win for Richard Smith's narrative a general acceptance that cannot be hoped for it at present.—J. W.

wooded valley lay quiet and green before him. Behind the huge, glistening buildings of white metal, the gleaming silvery veil of the fall plunged from a precipice, roaring down into a mist of fleecy spray. The valley was narrow—it was not half a mile to the steep, rocky slopes of its other side.

Another low, ominous mutter of thunder rumbled and pealed among the cliffs. It was difficult to locate its source; but, looking up the valley, Dick saw a peculiar cloud. Rather small, it was of a dirty, yellowish color where the light of the evening sun struck it. It was shaped oddly like a mushroom—it seemed to consist of a column of vapor rising, to spread at the top. Its motion seemed very swift. Little boiling vortexes were all along the edges.

"Here's one storm that the weather stations didn't stop!" Dick muttered.

He looked about for such stations. Half a dozen were in view. Two on peaks above the valley, almost under the strange cloud. Another on a summit above the valley's opposite wall. Three standing on the level plain below. Cylindrical towers, tall and black. Usually they had jets of white flame burning at their tops—jets of the atomic energy that warmed the air.

But the spreading jets of fire were not white now—they were red, a sullen, angry crimson!

Was something wrong, Dick wondered? The stations, he knew, controlled the motion of the air by changing its temperature and its density. Light, warm air rises; cold air, being heavy, settles downward, or flows to replace rising warm currents. Had the stations gone out of commission to cause the storm? Or was their change due to the fact that they were being used in an attempt to stop it?

The storm had grown amazingly, alarmingly, when he looked at it again. It was a huge, angry black pall, its edges riven with ragged lightning. The rumble of thunder among the cliffs had become continuous. Even as Dick looked up, a dark wall of vapor, spreading from the cloud, rushed across the sky above with astonishing speed. Ominous darkness fell suddenly upon him.

The cloud looked oddly like a picture Dick remembered having seen during his life in our world, a picture of Vesuvius in eruption, with an enormous, threatening, mushroom of black vapor rising above its cone. It was growing with terrible swiftness.

The black masses that composed it seemed to boil. Vast, whirling vortexes sprang up, rolled to the edge of the cloud, were lost in long, ray-like streamers that were stretching out to the horizon.

Then gray, leaden veils dropped suddenly from the dark blue cloud to the floor of the upper valley. A new sound reached Dick's ears, along with the roll of the thunder. A steady, drumming roar. The roar of rain and hail beating from the cloud.

Alarm seized him. Would not a heavy fall of rain in the valley cause a dangerous rise in the little stream that coursed down it, to leap over a precipice in the lacy fall?

He ran back into the huge building, and up the stair to the stage where Thon was still busy over the keys.

"We had better get out of here!" he cried. "I think there's a flood coming. Big storm up the valley! I can hear the roar of the rain!"

Thon, furiously busy, paid no heed.

"Yes, I know about it," Midos Ken told him. "We have just received a warning, by television. It is the

weather-control stations that caused it. They don't understand it. They have just found the operators murdered in the central control office. And the controls were set to produce a terrible storm, that will sweep down this valley.

"It is too late to stop it. The warning stated that it would sweep everything before it. Aircraft are advised to avoid it, and buildings below the valley must be vacated at once."

"Then we had better be getting out!" Dick cried. "We have the little flier here."

"It's too late for that," Midos Ken said. "It could never live in such a storm as this! When man goes to using storms as weapons, he improves considerably upon nature. The new space flier is our only hope. Thon is working to complete it. It could survive any storm!"

The air had been still, but now a shrieking wind interrupted Midos Ken's words. The roar of rain and hail beat suddenly upon the heavy metal walls of the great building, raising an appalling, deafening din.

"Men fighting with storms!" Dick shouted at the top of his lungs to make the old man hear above the roar. "What——"

"It is Garo Nark!"

"He is making the storm?"

"Once again I have let him beat me. I knew that my science would defeat any direct attack by him. Being blind myself, I had no fear of his invisible men. But it never occurred to me that they might seize the weather-control mechanism and attack us with storm and flood!"

"How soon will the *Ahrora* be finished?" Dick shouted.

But the scream of the hurricane, and the thunder of rain and hail upon the great building drowned the answer of old Midos Ken.

CHAPTER VI

K-Ray Riders

THE storm grew continually worse. Dick was thankful for the white, metal walls, heavy as a battleship's armor, that sheltered them from the force of raging elements loosed upon them by an evil genius who had stolen the scepter of science.

Thon was still furiously tapping the keys, a whole sheet of the functions before her not yet set up. Dick tried again to talk to Midos Ken, but the thunder of the tempest made conversation out of the question. The blind scientist, for all his wonderful hearing, seemed unconscious of the shout.

Dick ran down again to the open, arched door of the building. He could see but a short distance without. The resistless wind drove white, misty streamers of rain straight before it—it carried also green leaves, branches of trees, and even pebbles. Huge hailstones, crashing down, rang appallingly upon the metal building, and covered the ground with white, until wind and rain could sweep them away.

Even as Dick was watching, the roar increased again. A mighty, irresistible wall of gray water came sweeping down the valley before him, its front a foaming white crest fifty feet high. Mangled trees were tossed upon it. The earth trembled as huge boulders came grinding past, driven by the rushing water.

In a moment a broad river rushed before the door,

white streaks of hail beating its wind-torn surface into flying foam. Its level rose with terrifying swiftness. It reached the door of the vast metal building. It poured through, washed him to the knees in an icy torrent.

Hastily, Dick retreated up the ladder again, to the stage where Thon was working. Water rushed in after him, in an angry flood, covering the great floor.

Swiftly it rose, covering the stair, step by step.

The colossal metal building had been shelter enough from the wind and the hail. But the whole floor of the valley, Dick knew, would soon be covered with the rushing flood from the cloud-burst. The building could never stand against the mad force of the torrent that swept huge boulders along with it, grinding like mighty millstones. And even if it did, they would be drowned within it like the proverbial rats in a trap.

"Looks pretty bad!" he muttered. "And no chance even to die fighting!"

He glanced at his two companions. Midos Ken stood erect and calm as usual. His blind face, drawn with tension, was composed. The old scientist, even though his life had been devoted to a quest for immortal life, did not seem afraid to die.

Nor did Thon Ahrrora seem much frightened. Her lovely face was a little flushed. She seemed to be breathing rapidly; her breast rose and fell with quick little motions. But her flying fingers manipulated the keys with the same accurate, unhastened skill as before the storm had risen.

He looked down again at the troubled, angry sea below. The water had covered the door. It was halfway up the stair. The complex apparatus beneath the great jet table was already partly flooded. The steady, vibrant drone of a generator suddenly became irregular, stuttering. An alarming flicker was in the sapphire disk.

Still Thon bent over the keys in feverish absorption.

The water was not ten feet below them. The walls of the mighty building trembled with the terrific force of the raging flood that rushed against them.

The grinding roar of a huge rolling boulder became audible against the thunder of the storm. It apparently crashed against the end of the building, for a corner of the wall was crushed inward, and the roof above it sagged alarmingly. The water rose suddenly, almost to the level of the stage and of the jet platform.

Then, with a smile of triumph, Thon flung down a lever. The light of the blue crystal disk flickered out. The space flier lay complete on the vast black table. A long red cylinder, graceful, tapering, bright and glistening like Chinese ruby glaze. Its forward end, blunt and rounded, was studded with small windows, round and black. A massive round door swung open in her side. The rear end tapered gracefully, almost to a point.

The metal bridge fell to span the water that rushed angrily between the platform and the stage where they stood, water that was still rising rapidly. Thon seized her father's hand, led the way swiftly across it.

The great building seems to have fallen just as they reached the door of the red ship. The water was just lapping over the edge of the black platform. Then, suddenly, the platform was reeling, and the metal roof was crashing down upon them.

Dick seized Thon and Midos Ken in his arms, and made a plunge through the round door—using tactics borrowed from his football experience. He got them safely inside, and the girl touched a lever that closed and locked the massive door.

Then, it seems, they were tumbled about somewhat. But the interior of the *Ahrrora* was thickly padded; and her neutronium armor was indestructible.

The building must have gone down before the combined force of the mad torrent and a rolling boulder. The *Ahrrora* fell, probably, from the black platform to the floor. Possibly the boulder struck her—meeting one object that it could not grind beneath it. The flier may even have been carried for some distance by the raging flood.

Then, almost before Dick realized what was happening, everything was oddly still. The ship had evidently come to rest. He found himself braced against a padded wall, with a supporting arm about the shoulders of old Midos Ken. Thon had vanished.

They were in a low corridor. One side of it had the curve of the ship's hull, the other was straight, broken with doors at close intervals. Just behind them in the curved wall was the massive mechanism of the flier's door. The narrow way seemed to run along one side of the vessel, from end to end, giving entrance to the various compartments. Soft, green, shadowless light fell upon them from a luminous substance on the softly padded walls.

"Come here, Dick, and look!" a soft call in Thon's voice came down the corridor. He hurried down it, his shoulders almost brushing the wall on each side.

His sense of which direction was *down* changed oddly as he reached the end of the passage. For most of its length he walked along normally. But as he neared the end, it seemed that he was climbing. He had to climb through a sort of hatchway at its end.

He emerged inside a small, dome-shaped room—it was, he knew, the nose of the flier. The curving wall above his head was also padded, though its surface was smooth and glowing with soft greenish radiance. It was broken with the numerous little portholes, closed with shutters of white metal.

A narrow bench encircled the room. Upon it, and the curved wall above it, was a bewildering complexity of dials with trembling needles, of flashing bulbs and glowing tubes, of wheels and levers and spinning disks, of coils and purring apparatus that he could not describe.

In the center of the room was a small stand, and above it a white metal tube leading to the middle of the dome above—suggesting, to Dick, a periscope. Below the end of the tube, centering the top of the stand, was a gray screen. About it was a circle of variously colored keys.

At one side of the stand was a little upright lever of polished metal, with a white button on its top. Thon stood with her fingers lightly upon it.

"What happened?" Dick burst out. "Are we lodged on the bottom of the river?"

The girl laughed. She flashed him a tantalizing smile.

"Open a window and see," she said, pointing to one of the closed portholes.

DICK flung open the shutter. He was dazed, staggered, by the sight that burst upon him through the crystal disk.

He looked into interplanetary space!

The sky was black, utterly, inconceivably. Blacker than anything he had ever seen or imagined. And studded with a million diamonds. Hard, bright points of fire burned cold and motionless in it. White and red, orange and blue and green, dazzling pin points of light. And scattered among them, against the absolute black-

ness, were silvery sheets and clouds and spirals of faint nebular radiance.

He saw the heavens as he had never seen them in his own age. He saw them as they appear to one beyond the veil of air and cloud and dust that always hides most of their splendor from us.

Swimming in this void of diamonded midnight he saw a huge, luminous-globe. A greenish sphere, larger than the moon, its surface liquidly indistinct. It was irregularly splotted with clouds of dazzling white, with vague brown and blue areas. Here and there was a brown-green outline that looked vaguely familiar.

"What is that, Thon?" he asked, pointing. "Where are we, anyhow? And how did we get here?"

Thon laughed again, delightfully.

"That is a planet called the earth," she told him. "It is the original home of a race of small beings who call themselves men. Haven't you heard of it?"

"Be serious!" he pleaded. "Is that really the earth?"

"Oh, I know it looks small and insignificant!" she said airily, with a gleam of mischief in her blue eyes. "But it's still rather out of its true proportion."

She pressed a finger upon the little white button.

Dick felt no sensation of motion. (The K-ray, as Midos Ken had explained, applied its power equally to every particle of matter on the ship, so there was no effect of acceleration.)

But the earth dwindled suddenly. A tiny white crescent—the moon—came into Dick's field of view beside it. They shrank to a single dimepoint of light—vanished! A very bright star, blue-white, dazzling, crept into the window. At first Dick did not recognize it.

"The sun!" he muttered after a puzzled moment.

And the sun dimmed, until after a short time it was little brighter than blue-white Vega.

"A few more at this rate, and the sun itself would vanish!" Thon informed him.

"But how did we get out of the flood?" he persisted.

"I managed to get to the controls," Thon told him.

"Then it was easy. We just drove up through the wreckage. Our K-rays generate enough power to drive the ship through solid rock!"

She beckoned him to stand beside her. "Come," she said. "Let me show you how to drive the flier." Her fingers rested lightly in the little silvery bar with the white button at its top. "You press this white button to increase the speed," she told him. "Relax the pressure, and we continue to move forward through space, carried by our momentum, for there is almost no friction. But the button must be held down just slightly for that—when the pressure is altogether relaxed, the K-rays are thrown forward, to brake our flight and bring us to a stop.

"And to turn in any direction, merely incline the lever in that direction. Now try it!"

Dick was almost reluctant to try, for fear he would send them crashing into some sun or planet. Thon insisted, assuring him that space is very empty, and that he couldn't guide the ship into a planet if he tried.

He accepted the controls. His first inclination of the little lever was violent, and sent the *Ahrora* into a mad spin, from which Thon had to extract her. But after a few minutes he understood the mechanism, and got a huge amount of delight from the swift movement which he controlled so easily.

The complex apparatus about the walls, Thon informed him, had to do with the generation of the K-rays,

with the automatic recording and plotting of the flier's course on long voyages, with purifying and drying the air and keeping it at the proper temperature and with the necessary proportion of oxygen. There was a flat floor or deck, and a flat ceiling in the part of the flier behind the domed bridge. The space between these and the curved walls was used for storing a reserve of atomic fuel for the generators and oxygen for the passengers.

The space between the bridge in the nose of the flier, and the generator room in her stern, was divided into five tiny compartments—the miniature galley, in which their meals were to be prepared and eaten, three tiny staterooms, for Thon, Midos Ken, and Dick, and a store-room aft, in which reposed the weapons Thon had condensed for Midos Ken, and various other equipment that promised to be useful to interplanetary adventures, such as air-pressure suits for venturing outside the ship in space, tools, chemicals, and emergency rations.

Presently Thon conducted Dick down the narrow corridor to his stateroom. A tiny space it was, just over six feet long, and about that wide. A comfortable berth was built out against the curved wall formed by the hull. The padded, smooth wall, glowing greenly, supplied illumination. There was mirror, toilet utensils, lavatory with hot and cold running water, a closet filled with fresh linen and clean garments.

It filled Dick with fresh amazement to think that the little room had never been entered before, that Thon, with her wonderful science, had formed every article in it by merely tapping on a bank of keys.

"What do you think of it?" she asked him as she showed him the various conveniences, all arranged even more cleverly and compactly than those of our own modern apartments. Pride was shining in her eyes.

"It's all wonderful!" Dick cried, repressing a strong desire to throw his arms around her and kiss her as she had once done to him—which is probably what she expected him to do.

Presently she opened a little panel near the head of his bunk and showed him the weapon she had condensed for him. It was shaped like an automatic he had drawn for her. But it was covered with the same glistening red neutronic armor as the ship. The extra magazines were little cylinders which fitted up into the butt.

He tried the balance of it, sighted down it, and laid it back in its compartment, smiling with satisfaction. It felt like a real weapon. And from what Midos Ken had said about it, it was!

As they left the room, another thought crossed his mind. "How is it that we can walk here, away from the gravity of the earth?" he asked. "And why is it that here and in the corridor *down* is toward the *side* of the ship, while up in the bridge is toward the *rear end* of the ship?"

"Gravity plates in the floor," Thon said. "Gravity is just one of the vibrations on the order of the K-ray. We control it. Men used to fight with rays which cut off gravity and sent objects flying off into space. Such rays are used yet, on certain heavy, dense planets, to lessen the force of gravity in buildings, to make the human inhabitants comfortable."

As she spoke, they had filed up the corridor, and climbed into the dome again, where Midos Ken was waiting.

"Where are we going now?" Dick demanded. "Are we off to the Dark Star?"

"Not in this flier," Thon told him. "She is too slow. Such a long flight would take a year!"

"Slow!" Dick ejaculated. "And here we have already gone so far the sun looks like a star!"

"You don't realize cosmic distances yet," Midos Ken put in. "We are hardly half a light year from the sun. And it is at least one hundred thousand light years to the Dark Star."

"Then how are we going? What's the good in having the *Ahrora* unless we use her?"

"We shall ship the flier on a K-ray liner to the sun nearest the Dark Star," Thon said. "That way, we can cover the hundred thousand light years in a day. And it will only take a week or so to reach the Dark Star."

"I see," Dick agreed. "But I wouldn't have accused the *Ahrora* of being slow!"

"And now we go back to Bardon," Midos Ken said, "to get a few instruments I must have. And you might load a few coffers of your diamond tokens in the store-room, Dick. In two hours, we fly from the space-port on the mountain!"

With a skill that hinted of much practise, Thon drove the flier back until the sun was no longer merely a bright star. With almost the speed of light she circled about the earth, entered the atmosphere, and flashed down beside the great building of silver towers.

The angry black pall of the storm still hung over the mountain valley in the east, but here the warm, fragrant air was undisturbed. And the huge green dome upon the farther range of peaks, with the purple paths of the K-ray jetting from it, was still in view, like a wondrous crown of emerald and amethyst.

Midos Ken shut off the apparatus he had set to trap any invisible man who might attempt to molest their belongings in their absence. Quickly the scientific equipment of the old man, and Dick's remaining coffers of tokens, were loaded on the *Ahrora*.

AND here, the action of our story leaves the earth. What follows is a narrative of adventure in space, and on other worlds. The history of the great quest for the secret of life! There will be room for little more comment on the daily life and customs, the laws and the social institutions of futurity.

I have tried to give the reader some idea of that future age, and of the lives of its people. Most of the three hundred thousand words of Dick's notes is relative to such topics. But I feel that I have failed. The adventure part of the story has run away with me, in a manner of speaking. And I shall leave it as it is. Such other topics as the political and economic structure of the future state are tremendously interesting, of course. But they must be left to the coming book, "A Vision of Futurity."

There are a thousand things I have no space to mention here. The system of education, for example. Thon once explained it to Dick, took him to visit schools and nurseries. Most children were received by them at the age of a few months, though parents who were competent to do so could secure permission to raise their children in their own homes. It seems that those children of the future were reared more happily than those of our own day, and with greater psychological understanding. Their lives were free and natural—they were not imprisoned by repressions and inhibitions, by unjust laws and outworn conventions, false ideals and intolerant religions, as are children of our own time. This

universal education was the foundation of that wonderful social system of the future. Without ideals and capacities rightly developed, liberty would have meant anarchy.

But I must leave such subjects.

THE three boarded the *Ahrora* again. Thon piloted her swiftly to the leveled mountain top, of the colossal green dome from which dazzling purple rays spurted into the sky. The little flier was landed on the floor within the lofty, incredible building, beneath the prodigious crystal tubes from which the K-ray liners were shot on the purple beams to the planets of other suns.

Thon and Dick left the *Ahrora*, carrying a coffer of the diamond tokens. They descended an elevator to a series of vast chambers cut in the living rock of the mountain, compared to which the Grand Central Station of our knowledge seemed like a country railroad depot.

There, in a confused rush of millions of hurrying travelers, they found a ticket office, and arranged to ship the *Ahrora* on the next liner toward a certain sun, and to take passage themselves. Dick was rather dazed—he remembers little of the procedure, except that most of the contents of the coffer had to be counted out, to pay their fare and the freight on the flier.

"The Dark Star is in the same general direction as the Green Star," Thon told Dick as the elevator was carrying them back up, with the lightened coffer. "That is, they both lie in that section of the heavens designated as Perseus. The Green Star, as poor Don Galeen named it, is much farther away, of course, being outside the Galaxy. Our K-ray liner goes to Anral, which is a sun only six light years from the Dark Star."

They had reached the door of the flier. In a few minutes an official in blue uniform approached them. He came aboard and into the bridge room. Following his directions, Thon maneuvered the flier up beside one of the enormous, transparent tubes. There lines were fastened to it, and it was drawn through the sliding door in the side of the tube, and into the hold of the immense vessel of silvery metal that filled most of the tube's interior.

There they left it, fastened down with the lines, with bales and boxes of cargo piled about it. They reached the passengers' apartments above, in the central part of the great vessel, through a curious elevator in which gravity was shut off, allowing them to be lifted by a swiftly moving current of air.

Dick had paid for a rather luxurious suite—a drawing room, with Thon's stateroom, and a larger one occupied by both Dick and Midos Ken, opening from it. Meals were taken in the vast, magnificent dining room, with the rest of the passengers.

As on the *Ahrora*, there was no sense of motion or acceleration. Most of the passengers did not know just when the ship left the tube. Thon and Dick, however, were standing at one of the portholes through which they could look out. All at once the colossal green dome vanished above them, and they were plunging through space at such a rate that the stars looked like streaks of light, instead of points. There were other interesting optical phenomena, such as changes in color and displacement of the stars, due to the fact that their velocity was many times that of light. Dick enters into a discussion of them in his notes, but he uses unfamiliar scientific terms of futurity, which he does not explain. I do not follow

him completely. His notes will be quoted in full in "A Vision of Futurity," of course; but I shall not attempt to deal with the matter here.

The first day of the voyage Dick enjoyed immensely. He dined with Thon and her father in the splendid saloon. He danced with the lovely girl, to the fine music provided by the ship's orchestra. They played at some game resembling tennis. Thon, like most of the people of that future day, was a superb athlete. They bathed in the great pool of the ship—Dick was by this time well enough accustomed to the changed conventions of futurity so that he was only momentarily disconcerted at the idea of public bathing without a costume.

Midos Ken remained in his stateroom most of the time, sunk in deep thought. Such thought was necessary, Dick agreed, if they were to succeed in the attempt to rescue Don Galeen from the power of the Lord of the Dark Star. But, as he said, he didn't know enough about the Dark Star to even think about it.

Twenty-seven hours after the start, when the liner was only an hour's run from port on the major planet of Anral, sudden catastrophe came.

The captain, dining with the passengers at the head of the main table, was suddenly struck down by an invisible knife. He fell forward upon the table, scarlet blood from his heart crimsoning the spotless cloth.

An instant later, an explosion was heard from the direction of the bridge. Then, from various parts of the mighty vessel, came screams and curses, sounds of fighting.

Some of the junior officers of the vessel, seated near the captain, rose and started on a run across the great saloon, toward the elevator that led to the bridge. The cold violet light of an El Ray flashed about them, from an *invisible source*!

The elements that composed their bodies suddenly turned into water; the men vanished in huge clouds of white, condensing steam.

The thousands seated at the tables had been paralyzed with horror and fear. Now they surged to their feet, a wild, panic-stricken herd, ready to plunge for the nearest exit.

"Stop! Sit down!" A harsh, commanding voice rang out.

One or two passengers, nearest the door, puffed explosively into huge, billowing white clouds. The others recoiled, trembling and horror-struck, sank weakly into the seats they had just vacated.

"I am invisible!" the unpleasant, guttural voice spoke again. "You cannot see me. I can strike down any one of you at will. But you need not be alarmed unduly. The control of the liner has passed into other hands, but they are competent to take you safely to your destination.

"And your destination is the Dark Star!"

"You may consider yourselves prisoners of Garo Nark, Lord of the Dark Star!"

CHAPTER VII

On the Dark Star

DICK, with Thon and Midos Ken, was seated at a little side table, hidden from the rest of the lofty, columned room by a row of potted plants—tall plants, unfamiliar to Dick, with graceful fern-like fronds of a rich, vivid green, and long, spiked clusters of tiny red flowers, crimson and brilliant.

Through the screen of plants, they saw what had happened. But, unlike most of the other passengers, they did not make a sudden dash for the door. Thon and Dick looked at each other, and old Midos Ken bent his head, listening intently.

"Again I have let Garo Nark score over me!" the blind scientist groaned. "I had protected our persons from any enemy on board. But I did not dream that there might be enough invisible men among us to seize the ship!"

"I wish I had the atomic automatic down in the *Ahrora*!" Dick muttered.

He had been looking at Thon Ahrora. Her lovely face was flushed a little with excitement. Her blue eyes were bright. She was breathing quickly. To his surprise, there was an odd smile on her face, a smile almost of pleasure.

"What's the matter?" he whispered to her. "You aren't glad it happened, are you?"

"What's the difference?" she asked him, still smiling. "We were going to the Dark Star. We should be as comfortable on this liner as on the little flier. I don't know just what's going to happen, but it will be fun!"

Dick grinned at her. A wonderful girl! Brave and resourceful! A girl who could fight! And one worth fighting for!

He peered out again through the screen of plants. The passengers were seated again, but tense, anxious, frightened. Silence had fallen over the great room, broken only by furtive whispers, or by the occasional scream or hysterical laugh of a scared woman.

But suddenly the orchestra—obeying a low-voiced order from an unseen man—struck up a quick, lively air. At the same time the agitated stewards, returning to their duty, were busy bringing drinks. In a few minutes the tension had lessened somewhat.

Then the harsh voice of an invisible man spoke again.

"The liner has already left the K-ray beam," it said. "We are now bound for the Dark Star, under our own emergency K-ray generators. The voyage will take two weeks.

"The routine life of the ship will go on as before. The stewards will continue their duties as usual, under penalty of death. The passengers are urged to make the best of circumstances and to enjoy themselves. The ship is well provisioned. There is plenty of alcoholic beverages among the stores to keep us all feeling merry." A low, mocking laugh rang out from apparently empty air. "Many of the lady passengers are by no means hard upon the eyes. The orchestra is unsurpassed. So, with wine, women, and song, what is there to worry about?"

A sigh of relief escaped thousands who had expected an immediate end, though the words of the unseen speaker roused little applause.

"Passengers and crew will be expected to keep their regular places," the voice went on. "We will occupy the bridge and the officer's quarters. Anyone venturing outside his allotted part of the ship is likely—well, to have an unpleasant experience."

The voice fell silent.

In a moment the orchestra was playing again. A few couples already fortified, left their glasses to dance. A harassed steward hurried up to the table where Dick sat with Thon and her father, and left brimming glasses of wine.

"Did Garo Nark know we were aboard?" Dick asked

as he sipped the fragrant drink. "Or is he taking the ship in the line of his regular profession?"

"I don't know," Midos Ken answered reflectively. "The capture of the ship must have been planned well in advance. And Garo Nark probably doesn't know that we escaped his storm. The liner would undoubtedly have been captured anyhow. But it is possible that the pirates know we are aboard."

"It is twenty years," he added, "since he has taken a ship. Then there was a long war, when Garo Nark attacked the planet of Anral, the sun which was our destination. He had just come to the throne of his pirate planet. It is said that he murdered his father to hasten his accession."

"A long war it was. Nark's ships defeated the fleet of the Union. He seemed victorious. Then I presented the Patrol a little scientific trick. A device which charged matter with a sort of electronic energy, protecting it from the El Ray. Nark could do nothing against it. He was pretty thoroughly defeated."

"He had not ventured to attempt any more piracy. But he has been busy, planning a revenge upon Thon and myself, it seems. Now, I suppose, he is throwing down the gage."

"Nark may know that we are on board. If he doesn't, he will be pleased to discover it."

"Then there is great danger—for Thon?" Dick's voice was apprehensive. He looked nervously across at the girl, to find hope and courage in her eyes.

"The Lord of the Dark Star hasn't beaten us yet!" she told him. "Dad still has his scientific tricks. The *Ahrora* is still safe in the hold. Nark can't hurt us personally—unless he has invented a new weapon."

Presently they retired to their suite, where they were unmolested.

Two days went by.

The invisible pirates, who controlled the ship, were not much in evidence. Frequently the footsteps of an unseen person were heard. Sometimes a door opened without visible cause. The stewards and others of the ship's crew frequently heard low-toned orders from empty air, which they hastened feverishly to obey. Only one man was killed—a passenger who went insane and attempted to storm the bridge with a table knife. He vanished in a billowing cloud of steam.

THE passenger life went on as usual—except that, in their attempts to forget anxiety that oppressed them, many became reckless. There was much drinking, much mad music, much wild dancing. Love making there was, of a feverish, abstracted, passionate sort. Men and women gambled for high stakes, quarreled and fought. Blood was shed on several occasions—though every brawl was stopped promptly by an uncanny voice speaking from transparent air.

Few were sure what would happen at the end of the voyage. Many feared the worst and were prepared to get the most out of life, while they enjoyed it in the luxurious surroundings of the liner.

Thon, Dick and Midos Ken, having, if not more courage, at least more confidence and purpose than most of the passengers, spent much of the time in their suite, trying to plan a course of action. Nothing had happened to show that their identity was suspected.

On the evening of the second day, Dick was struck with an idea.

"Do you suppose we could get down in the hold to

the *Ahrora*?" he asked Thon. "We might hide in it, and make a dash for liberty when the liner lands on the Dark Star and the hold is opened."

"A good idea," the girl agreed. "Only if we could get aboard the little flier, we wouldn't have to wait for the liner to land. We could smash a way out through the hull. With the power of our own generators and that neutronium hull, it would be easy."

"But that would let the air out of the liner, and kill all these thousands of passengers!" Dick objected. "We couldn't do that!"

"There are airtight bulkheads," Midos Ken told him. "They would hold the air in the passenger's compartments. The *Ahrora* could break through the hull quite easily. It would let the air out of the cargo hold, of course. But that would do no great harm, and the crew could repair the break in a few hours."

"I had been thinking over the plan before you suggested it," he added. "The difficulty seems to be to get down to the flier. Once aboard, we are safe. You recall that the pirates promised something unpleasant to any passengers who leave the regular quarters. But we will make the attempt, at least, if you are willing."

"Of course!" Dick said. He turned to Thon.

"When?" the girl asked her father, after a quick smile at Dick.

"Twelve tonight," said the old man. "It is now just after ten. That gives us nearly two hours to make any necessary preparations. At that time our fellow passengers should be at the height of their revel—they ought to divert attention from us."

"I suppose we go down an elevator?" Dick asked.

"There are two tubes through the center of the ship," Thon told him. "We came up one of them. No gravity plates there, so we are weightless. A current of air flows up one tube, down the other, moving the passengers."

"The first difficulty will come at the entrance to the shaft," Midos Ken said. "There is a locked door there. And it may have an invisible guard."

There was little to be done in preparation for the adventure, as all of their more bulky possessions had been left in the *Ahrora*. Midos Ken produced three little devices resembling wrist watches. One he fastened on his own arm; one of the others he presented to Thon; and one to Dick.

A little shell of green metal, it was, no larger than a coin, with a narrow strap to hold it upon the wrist. A slight whirring sound, almost inaudible, came from each. When Dick fastened the device about his arm, he felt a not unpleasant tingling sensation where the metal touched him. Throbbing force seemed to run over his body from it.

"This is a modification of the scientific trick that defeated Garo Nark in the war," Midos Ken said. "The little generator charges the body with a force that neutralizes the El Rays. It is rather well known now, and I have developed other means of protection. But under the present circumstances, we can afford to risk no more than necessary."

"Feels queer, does it?" Thon asked. "Well, it will do no harm, anyhow. It makes a person slightly luminous in a dark room—the discharge of the force. Electrical phenomenon."

At five minutes to midnight they left the suite, talking and laughing carelessly as if merely out for adventure, and tried to lose themselves in the feverishly gay

throngs of passengers. Music throbbed from the orchestra, music with a mad, sensuous, emotion-exciting rhythm. Dancers spun wildly about the saloons, in passionately close embrace, faces flushed with wine and the careless abandon of the hour. Voices hummed, high and shrill; hysterical laughter rang out.

As quickly as they could do it without displaying haste, the three passed through the saloons and promenades and drawing rooms toward the entrance of the main elevator, on the lower deck. Once they paused as if to drink, but left their glasses after the merest sip.

By the stroke of twelve they stood before the elevator. The broad deck or floor behind them, used for athletic games, was all but deserted, though strongly lit by a clear green light from the ceiling. The door was tall, oval, massive as the door of a bank vault. And it was locked.

Quickly, Thon dipped a hand into a pocket of her blue silken garment. She drew out a slender rod of black, glistening crystal, the size of a lead pencil. About it was a sliding, silver ring.

She bent over the massive bar of white metal that held the great door locked. The little black rod—now Dick recognized it as a miniature El Ray projector—glowed with a violent fire that seemed to pulse down its length, to reach beyond the end in a narrow, quivering tongue of flame.

Beneath Thon's fingers, the little lance of violet fire cut through the white metal of the bar as an oxy-hydrogen torch cuts iron or steel. Hissing jets of steam rushed out of the fissure, and rose above them in a white cloud.

The El Ray turned the metal to water!

One end of the bar was cut through. She turned to the other. She had cut it half way through when Midos Ken, who had been listening sharply, turned with a little warning cry.

DICK had been trying to stand in a lounging attitude, in such a position as to hide the stooping girl from any invisible guards who might be about. But the hissing white clouds of steam, rising many feet above them, he had been unable to hide.

Now, as Midos Ken turned, he searched the room again, but saw nothing to alarm him.

Then, an intense beam of violet radiance flashed about them. An El-Ray, which seemed to come from a point not twenty feet away! It was the same bright beam, thrown by an unseen man, that had turned others on the ship into billowing clouds of vapor.

But the pirates had dealt with Midos Ken before.

The violet ray flashed upon them, harmless as a ray of light.

A gasp of surprise, and a muttered curse, came out of the air behind the beam.

Then Midos Ken thrust out toward the sound what looked to Dick like a polished cylinder of yellow topaz, an inch thick and about two inches long. He thinks it was a vacuum tube of some kind, with an atomic power generator inside it. He saw no visible ray or projectile come from it.

But there was a voiceless, inarticulate cry of pain from behind the violet beam. And the El Ray flickered out. There was a clatter as some unseen instrument—probably the El Ray projector, covered with the chameleon-like pigment of invisibility—fell upon the floor. Then a dull thud, as a human body fell beside it.

A moment later Thon had finished the second cut in the bar. The middle section of it fell with a clang. Dick stopped and lifted it aside. The door was free to open. Thon turned a little knob, and it swung outward.

One by one, Thon first, then Midos Ken, then Dick, they leapt into the down-rushing current of air within the tube. It gave Dick a strange feeling to leap, when his turn came.

"Too much like jumping in a well in the dark!" he muttered.

But he did not hesitate.

All gravitational force was cut off, within the tube. The current of air carried them gently down. Luminous numbers flashed past, and glistening handrails which one might grasp to stop at any floor. Thon and her father had vanished ahead of him, in the dark tube. He had a sudden feeling that he was lost, that he did not know where to stop.

Then Thon's white arm flashed out of a dark opening, caught his shoulder. He clutched a rail, drew himself toward her. Suddenly he was standing on a floor again, and felt gravitational force drawing him against it.

They were in a huge, dark space. Dick could see nothing plainly. He knew that they were in the cargo hold only by the curious, mingled fragrance of many kinds of merchandise, which he had noticed when they had left the *Ahrora* here.

"Here we are safe!" Thon whispered swiftly. "But come. They will find the dead man; follow. We dare not make a light. Dad will guide us."

Pale, roseate luminosity clothed their bodies.

Midos Ken was in the lead, they stumbled forward, among piles of cases, drums, sacks, and bales of a thousand commodities. Dick was guided by the light fingers of Thon upon his arm. Despite them, he stumbled, and ran into a wall of boxes.

Suddenly there was light, dazzling, blinding, painful. An intense white beam wavered across the vast, crowded hold, casting flickering, fantastic shadows of the piled merchandise. They heard the rush of footsteps and low voices. There was a cry of "Here! They went this way!"

Violet gleams flickered behind them. White clouds of steam billowed up, here and there, where the El Rays reduced a pile of cargo to water vapor.

"There! I see 'em!" cried a voice behind. "There they go!"

There was another clatter of feet.

"Give 'em hell!" came a harsh command.

Dick was still struggling forward, led by Thon, too much blinded by the sudden dazzling light to profit by it.

"I'll stop that!" Midos Ken muttered, ahead of him.

Dick heard a faint tinkle of shattering glass. And abruptly he was in utter darkness. The dazzling searchlight was gone. The hold was absolutely black. Another of the ether-exhausting bombs, he knew. Thon led him on through the blackness.

Curses of irritation and alarm came from behind them. They could hear men stumbling, blundering into the piled cargo.

"What's the matter with the damn searchlight?" a harsh voice demanded.

"Here we are!" Thon breathed suddenly.

They stopped against the smooth side of the *Ahrora*. Midos Ken fumbled with the fastening of the door—a sort of combination lock which prevented others from entering in their absence. He voiced low, musical notes

which controlled it. Then it was open. Thon guided him through, closed it again.

"Safe!" she cried. "They couldn't get us out of here in ten years!"

Within, it was as utterly dark as without. They groped their way along the narrow corridor, and "up" into the little domed bridge at its end.

"What about some light?" Dick muttered.

"My bomb exhausted the ether in here as well as outside," Midos Ken told him. "And since light is a vibration of the ether, there is no light. Even our K-ray generators will not work until the ether has had time to flow back. It will be five minutes, perhaps."

They waited in utter darkness. Dick found it vaguely disturbing not to be able to see at all. He put out a hand, touched Thon's cool fingers. They grasped his hand, squeezed it reassuringly.

"What do we do when we get outside?" Dick asked. "Go after Don?"

"Yes," Thon cried. "Off to the Dark Star, to rescue Don Galeen! We ought to gain a week on this liner, with our new generators."

Abruptly the darkness vanished from about them. The domed wall bathed them in soft, mellow green radiance. Dick looked about at the maze of complex apparatus on the circular table against the wall, at the little stand in the center, with the telescopic vision screen that showed what lay directly ahead, and the little control lever of polished metal, with the white cylinder set in its top.

Thon put her slender fingers on the little lever, pushed it a little to one side, pressed suddenly on the white cylinder. Then, smiling, she raised her hand.

"What's the matter?" Dick asked, puzzled. "Can't we smash the way out?" He had felt no sense of motion.

Once again Thon told him, smiling, to open a window and look.

He swung open the metal shutter of one of the port-holes. Once more the splendor of interplanetary space was before him, a curtain of midnight velvet, sewn with glittering diamonds, and dusted with silver. But the familiar constellations seen from our own earth were completely lost. In fact, he was so far toward one side of the Galaxy that most of the stars seemed to be on one side of the sky.

"We have really escaped!" he cried. "But how is it that we felt no shock when we broke through the wall of the liner?"

"Our K-ray mechanism transmits all shocks and pressures equally to every particle of matter on the ship," Midos Ken said. "Thus there is no pressure of one particle against another, in any gain or loss of speed."

Thon was pointing to the little screen on the center of the upright stand. There was mirrored a section of the star-strewn space without. In it floated the long silvery hull of the K-ray liner, looking to Dick like a Zeppelin tossed up among the stars. The faint purple glow of the K-rays clung about her stern. In the middle of her side was a black, round spot—it looked no bigger than a bullet hole.

"That is where we came out," Thon said. "They will have it patched up in a few hours. See, they are already at work!"

She pressed a button beside the screen. The image of the liner seemed to swim closer, until they could plainly see the ragged hole torn in the white metal plates. Half a dozen men, in grotesque metal space suits, were busy

about it. Queer figures, weightless, hauling themselves about on lines.

"And now we are off for the Dark Star, after poor Don!" Thon said.

She inclined the little metal lever. The ship vanished from the screen. Stars raced across it. Presently, with a bright binary in the center of the screen, she raised the lever to hold it there. And she pushed the white cylinder down to the bottom of its socket in the lever.

Dick had no sensation of motion, but he knew that he was rushing through space at an inconceivable velocity.

FOR six days they flashed through space. On the third they shot between the twin suns of the double system, both young stars, huge and blue. On they went toward another faint star that, Thon told him, was Anral, which had been the destination of the liner.

Dick and Thon stood alternate watches of four hours each. Piloting the *Ahrora*, he discovered, was not a strenuous task. The white cylinder could be locked down to keep the generators going at full power. It was necessary only to watch the star toward which they were flying, and move the little lever at intervals, to keep the star in the center of the telescope screen.

Dick had been alarmed, at first, about the danger of collision with meteors. But Thon told him that no meteor could damage their neutronium hull. And the K-ray "shock-absorber" which protected them from the effects of acceleration, would make it impossible for them to feel the shock, she told him, even if they ran into a planet.

Despite the small size of their quarters in the *Ahrora*, they were able to live quite luxuriously. Ventilation was good, for a fresh current of air, dried, purified of carbon dioxide, and warmed to the proper temperature, blew continually from the revitalizing device. The carbon dioxide, as well as garbage and other waste, was reduced to water by El Ray apparatus. And this water was stored in tanks below the floor, to be turned into oxygen to replenish the air, or into a delicious variety of synthetic foods for the table.

There was scant room for exercise, but Thon, herself a superb athlete, insisted upon regular calisthenics in the corridor.

At the end of the sixth day the course was changed again. Thon manipulated the little lever to bring a faint speck of light into the telescope screen on the little stand. So faint it was that the highest power of the instrument had to be used to make it visible at all.

"That is the Dark Star!" she told Dick. "We are comparatively near it now; we shall reach it in ten hours!"

Her blue eyes flashed with excitement. She smiled as if it were a pleasure to slip down in a daring raid upon a pirate planet. Dick trembled lest the audacity of the girl should sometime get her into a predicament, from which even her quick mind and the science she had learned from Midos Ken could not extricate her.

"What will we do when we get there?" Dick asked. "Can you tell me something more about this Dark Star?"

"It is a planet without a sun! Thrown off, perhaps, from its parent star by some forgotten cataclysm. It was floating alone in space when men found it, a dead, frozen world of endless night. Such it was when the pirates of space first made retreats in its barren icy wildernesses.

"A huge planet. Twice the diameter of the earth, with four times the area. But the force of gravity there is only a little greater, since it is not so dense as the earth. Vast, frozen seas cover nearly half of it; there are lofty mountain ranges, wilder than any on the earth.

"Now it has a population of billions—all degenerate slaves of Garo Nark, Lord of the Dark Star. An empire of pirates, covering a whole planet. They brought their prisoners there, forced them to colonize its bleak wildernesses.

"Much of the surface of the Dark Star is warmed and lighted with atomic power—with machines like those that control the weather on the earth. But the population is mostly concentrated in a few large cities, instead of being spread uniformly as it is on the earth—probably to simplify the problem of defense against the Union Patrol.

"The inhabited region is a broad belt about the equator. The polar regions—no colder, originally, of course, than any other part of the dead planet—are uninhabited. They are mostly covered with frozen oceans, or rugged mountains.

"There is a barren mountainous region only a few hundred miles north of Nuvon, which is Nark's capital city. We can land there, I think, without being discovered."

"You seem to know a good deal about it," Dick remarked. "Are visitors allowed there, to carry information to the rest of the Galaxy?"

"No," Thon said. "It is through one of the adventures of Don Galeen that I learned about it. There are few dangerous places that he has not been in. It seems that Garo Nark is not an ideal ruler. His subjects are not all satisfied; many of them wish to escape from the Dark Star.

"A few years ago, Don joined some other adventurers, on a project to aid the escape of a few of Nark's unsatisfied subjects who were able to pay generously for passage to another planet. They had a K-Ray flier.

"Don, with another kindred spirit, was dropped on the Dark Star to find the passengers and collect the fare—which, of course, was rather high—to one of the planets of Anral. The flier was to land again, in a few weeks, in the mountains north of Nuvon.

"They found the passengers—many more than they could take—ready enough to come. Don was busy guiding parties of them through the frozen darkness of the mountains to the cavern where he hid them, with their chests of diamond tokens, to wait the flier.

"But Garo Nark seems to have a good intelligence service. He found what was going on. One of his ships raided the camp. The diamond tokens that were to pay the expenses of the venture were confiscated. The passengers—except a woman or two who struck the fancy of the ship's officers—were dispatched with the El Ray.

"Don escaped, happening to be out with the last group of passengers. He sent them back and hid in the mountains. Nark's ship was waiting in ambush to trap the flier. But Don got into television contact with it, gave his warning, and arranged to be picked up, a month later, at the edge of one of the frozen seas.

"It is four years ago that that happened. It was not long after that Dad sent him in search for the catalyst."

Dick had watched Thon as she spoke, noting the vivacity of her lovely face, and the admiration that flashed in her eyes as she spoke of Don Galeen and his exploits. But who would not worship a hero who had braved the dangers of a hundred wild planets, he wondered. And

what could he offer, against the claims of this adventurer, who was so brave, so handsome of face and mighty of body, so resourceful in dealing with his enemies?

On they flashed toward the Dark Star.

Presently Thon retired to her stateroom. Dick stood a long watch, to give her time to refresh herself to meet the perils of landing. They were only two hours from the Dark Star when she entered the bridge again. But it was still only a faint speck of light on the screen.

Thon drove the flier the rest of the way. The Dark Star grew presently to a tiny, dim-lit sphere, visible upon the screen. A broad belt about its equator was lighted; there were brighter white patches that were cities, and dim green areas that were forests and parks. To the north and the south of this lighted equatorial belt, the planet was dark.

Thon checked their speed a little, while she located the black area that was the mountainous district north of Nuvon. Then, having her bearings upon it, she drove the flier down at the limit of its power, to flash past any watch that Garo Nark might have on duty. Dick got few impressions of the landing. It seemed to him merely that the little image of the planet, on the screen, expanded, blurred, and faded. Then Thon raised her fingers from the control lever, he said,

"Here we are!"

DICK could hardly reconcile himself to the idea that Thon should go out alone to find Don Galeen, leaving him and Midos Ken in the *Ahrora*. But the girl, busy bundling herself up in heavy garments, against the bitter cold of the barren mountainous region where they had landed, insisted.

"We can't send Dad out alone!" she said. "And if I went with him to show the way, we would attract too much attention."

"I must go!" Dick said.

She smiled at him, shaking her head. "Something might happen to you," she said.

"I'm no baby!" he cried. "And I'm afraid something will happen to you!"

"Remember, you have been in our world but little over a year," she told him. "There is much about it that you don't know. You are brave enough, but you mustn't be foolish.

"And don't be afraid for me. I have some of Dad's weapons. If I am attacked I can take care of myself. I will carry enough of your diamond tokens to buy protection from anyone I meet—protection, and information about poor Don Galeen."

She held up a little black metal disk, two inches across and thin as a watch.

"This is a television instrument. I have one like it with me. Keep it near you. If I call, there will be a little humming sound. Hold it before your face, and you can see and hear me. But I shall not call unless it is necessary, for the call might be picked up and betray us." She handed him the little instrument.

When she was ready to leave, Dick went to his stateroom, and got the weapon which she had made him. He felt the balance of it again, and slipped it in his pocket. She opened the massive door, and he stepped with her out into the chill darkness of the pirate planet.

Overhead and in the north, strange constellations were burning in a black sky. Southward, however, was a faint aurora of purple light—a flush like that of dawn

on earth. It was the reflection in the sky of the lights of the inhabited regions of the planet.

The *Ahrora* lay in a narrow mountain gorge or canyon, as the faint southern light revealed. Dark, jutting precipices loomed on either side. Snow crunched under their feet, a pale and ghostly white in the dim radiance. The red hull of the flier, visible as little more than a dark mass, lay on a bed of snow-covered boulders. A bitterly cold wind blew down the dark ravine from the north.

"I will go with you until we are near some building," Dick said.

"No," Thon said, "I must go alone. A passing flier may pick me up before I have gone ten miles beyond the end of the canyon. And you must not be seen. Don't worry about me. I'll take care of myself!"

She gave Dick her hand. He gripped it.

Like a white shadow she was in the faint light, clad in garments that faded against the snow, and the dearest thing in the world to Dick. Almost he threw his arms about her and told her so. Then, recalling that she was going on this dangerous mission to rescue a man who probably meant much more to her than he did, he checked himself.

"Good-by!" he choked.

He thought she was going to speak, for a sudden little sound came from her, broken, inarticulate. Then she had turned, leapt away into the gloom. He felt a wild desire to run after her, but halted after a few stumbling steps.

She had dissolved like a wraith into the white wilderness of snow.

The next two days seemed the longest in Dick's memory. Most of the time he stayed in the flier with old Midos Ken. He had nothing to do but prepare their meals, eat, and sleep. He had no appetite; and he could not sleep.

For long hours at a time he stared at the little black television disk Thon had given him. But no message came from it. He stared out through the portholes at the rugged, snow-covered landscape, with the black, star-strewn sky in the north, and the dim flush of light in the south, staring to catch a glimpse of Thon returning. But she did not come. The only motion was the slow wheeling of the strange stars above the ragged black peaks of the mountains.

Suspense and inactivity drove him nearly mad. Midos Ken, too, was anxious, though his blind face was calm and impassive. He sat sunk in thought, silent, waiting patiently.

The only relief Dick found was to don heavy garments against the bitterly cold wind, and tramp up and down in the snow outside.

On the evening of the second day (days were measured only by their chronometers, for the darkness was continual, and even the rotation of this world did not mark days, for its period was far longer than that of earth) Dick was walking up and down on the packed snow outside the door of the flier, head down and hands in his pockets, sunk in anxious despair.

Suddenly a broad beam of golden light flashed upon him. The flickering violet finger of an El Ray stabbed at a snow-covered boulder beside him, raising a hissing cloud of steam, which quickly condensed in the chill air, and fell as a little flurry of snow.

"Stand still!" came a menacing voice. "You are arrested by the imperial guard of Garo Nark, Lord of the

Dark Star. And it will be well for a friend of yours, who foolishly thought she could outwit the Lord, if you will come in peace!"

CHAPTER VIII

When the Dark Star Moved

WHEN the El Ray had flashed out to strike the boulder, Dick's hand had automatically moved to draw the pistol-like weapon Thon had condensed for him. Cursing himself for being caught outside the indestructible hull of the *Ahrora*, he was none the less glad of a prospect for action. The insinuation that Thon had been captured, merely confirmed his fears. He paused a moment at the threat that resistance on his part would bring ill to her.

But he could not surrender abjectly, merely because of such a threat.

As the menacing voice ceased speaking, he threw up his atomic pistol and pressed the trigger. There was no recoil; the weapon made no sound. But, the merest instant after he had fired, there was a blinding flash of reddish purple fire before him, in the direction from which the voice had come.

He was conscious of a sharp, crashing explosion.

Midos Ken had warned him not to fire at anything too near. The man he had hit had literally exploded. The blast had been so terrific that Dick was hurled backward, unconscious.

The next he knew, he was lying on a soft couch, in a huge, warm room. Many people were about; he heard a buzz of conversation. Midos Ken was standing beside him, a gnarled old hand on his forehead.

Dick blinked, and sat up with a groan. His muscles were sore. His head throbbed; he brought a bruised hand up, and felt a swollen knot on the back of it. Brilliant light bathed him; it was so bright that he could not at first take in his surroundings.

When he could see, he gasped.

He was in a great hall of magnificence beyond parallel. Floor of smooth, glistening gold. High walls of glowing emerald crystal, great panels of burning ruby set it in—ruby panels inlaid with strange designs in silver and sapphire and jet—arched and vaulted roof white, with the prismatic whiteness of fresh-fallen snow.

It was a huge hall, two hundred feet high, fully that in width, and many hundred feet long. Thousands crowded its gleaming yellow floor. But its immensity made them seem insignificant. Despite them, it seemed empty.

And it was familiar!

Dick knew he had seen it before! He racked his aching brain. He sought blindly through tangled wisps of thought. But vague mists of pain befogged his mind. A throbbing ache beat his forming thoughts to tatters. He could not remember.

Then old Midos Ken, beside him, crushed some small object in his palm, and held it under Dick's nose. He inhaled, breathing some vapor pungent as ammonia gas. It was stimulating as a dash of cold water. His brain cleared. Recollection came.

This was the throne room of Garo Nark, Lord of the Dark Star! And he had seen it before—on his first day in this world of the future, in the television view on the wall of the room at Bardon, when Nark had appeared to demand Thon *Ahrora* as his queen.

Dick looked about more closely. The walls were lined with guards. Magnificent men, tall and strong. They wore black, with girdles of red. Standing beside them were the long, thick tubes of black crystal, the El Ray projectors.

Then his roving eye found Garo Nark.

He sat on his purple throne, a hundred feet away, behind the center of the room. It was a marvelous throne. The purple crystal of which it was cut burned richly with intense inner fires.

Nark was a giant of a man, his nature wholly evil. Dick could well believe that he had murdered his father for the throne. He lounged back on black cushions. A sheer, sleeveless garment of crimson silk, dropping from left shoulder to knee, and held about his waist with a black girdle, was all he wore. His mighty body was revealed to the best advantage—bull neck—long limbs with huge, corded muscles and vast shoulders.

Dick was appalled as he looked at the face of the giant, with its broad, cruel mouth, huge jutting nose, and deep black eyes flaming with malice. Were they at his mercy?

Beside the throne stood Pelug, the thin, scrawny man, with scraggy yellow beard and glittering eyes, green and snake-like.

"Are we prisoners?" Dick asked Midos Ken, in a low tone. He could see no one near them. A couch had been placed near the center of the room. He lay upon it, the old blind man standing beside him.

"No," Midos Ken said. "Not yet, at least. You defeated yourself in your battle by the ship, by shooting at a man so near that the force of the atomic explosion reached you. You killed three or four invisible men, however.

"The rest of our attackers wanted us to surrender. I refused. But I offered to come under a pledge of truce, to talk with Garo Nark and see if we can arrange terms. They tried to destroy you, me, and the flier. Not being able to see, I was at a disadvantage, of course. But I contrived to protect ourselves and beat off their attacks.

"Then they agreed to bring me down here, for a sort of peace conference. I have all my portable weapons with me, and Garo Nark has his fighting men ready for action, I suppose. We are going to talk things over. We have agreed not to start hostilities until we have returned to the flier."

"Where is Thon?" Dick asked.

"I don't know," the old man said, "But I have been told that Garo Nark has her somewhere in his power."

At a whisper from his master, the shriveled little man, Pelug, stepped forward from beside the purple throne, his green eyes glittering malignantly.

"Are you ready to talk with the Lord of the Dark Star?" he demanded rather uncivilly, pointedly failing to use any title in addressing Midos Ken.

"We are," said Midos Ken. Dick was glad of the

"we." It made him feel that he had a greater share in the proceeding.

He got to his feet, feeling as good a man as ever after inhaling the stimulating vapor. He rejoiced to feel the weight of his atomic pistol in his pocket. It had been returned to him.

Taking Midos Ken's arm, he walked forward, until they were about fifty feet from the purple throne. There the old man, with a low word, halted him.

"What is it you want of us, Garo Nark?" Midos Ken demanded boldly.

The giant on the crystal throne straightened, cold flame of evil burning in his black eyes.

"I wish Thon Ahrora to be one of my queens," he said, in a harsh, leering tone. "An honor, that, which no reasonable woman can refuse!" He chuckled evilly. "And I demand that Don Galeen tell me the location of the Green Star! And that you help me find the catalyst of which my agents have heard you speak. And help me to use it, in order to give endless life to myself and to my friends.

"In return for this, I will give liberty to you, and to Don Galeen, and to this ape from the past." He leered at Dick. "And if you refuse, I shall take all of you prisoners, despite the weapons you are so proud of. I shall deal with Thon as I like. I shall torture from you and Don the information that I want! And then the three of you shall die by the slowest and most painful means that the science of my empire can devise!"

"You are a fool," Midos Ken said calmly.

Malevolent anger flamed high in the black eyes of Garo Nark.

"You mean that you refuse?" he demanded.

"I do!"

"You have spoken your doom! You shall die, if it takes every man I have to kill you!"

"Where is my daughter, Thon, and Don Galeen?" Midos Ken demanded.

Garo Nark burst into evil laughter, that somehow, to Dick, seemed forced and unnatural.

"They are in my power!" he cried, gloatingly, "where you will be soon!"

"If any harm comes to her," the old man cried in a clear tone, level and menacing, "I will blot you out—you and your whole planet!"

"Count me in on that!" Dick challenged.

"Can't you silence the chattering ape you caught in the jungles of the past?" Garo Nark jeered. "If you cannot control him, give him to me. I have excellent animal trainers!"

Dick could hardly hold himself still. He longed to send his fist crashing into that ugly, evil face, as he had done once before. But he kept his hands at his sides. Perhaps, he thought, Nark was merely trying to get him to make a physical attack, to break the truce.

Prima Donna 1980

By Bernard Brown

WHEN television becomes an established, perfected mode of entertainment and the ownership of the centers of broadcasting becomes more concentrated—which present tendencies indicate as probabilities in the near future—problems galore, of astoundingly new and as yet undreamed of complications, must follow in natural sequence. A few of these problems—with their cleverly ingenious solutions—are propounded by our contributor from H. G. Wells' country. We are glad to welcome our new English author to our midst.

Illustrated by MOREY

DOCTOR JAMES HELBERG stared hard at his consulting screen and slowly turned the polished knob of the intensifier. Gradually the scene pictured there advanced until the field was completely covered by the lower half of the face and neck of his patient. At the same time stentorian gasps were emitted from the concealed loud speaker.

With a gesture of annoyance the doctor cut down the sound amplification and proceeded in matter-of-fact tones.

"Take temperatures and blood pressures in cycles of five minutes, combine with the standard laryngeal curves and integrate in the usual manner. I will examine these at consultation time, 3.06 tomorrow. Televisé on wavelength S3 if the peak values are above 40 per cent."

"As you order, sir," boomed back the screen; then the radiance snapped off as the doctor released the foot switch and sank back into his consulting chair.

It was all very well being a specialist of the Order A, but it meant a hundred-per-cent work all day long and any part of the night that some monied fool or other chose to swallow a fish-bone. In the old days a specialist could live his own life more or less as he liked. Even then the work was hard, but there were periods of rest while traveling from one place to another.

Now things were different. He had not left his home for three weeks, but each day had dealt with a hundred or more cases, ranging in latitude from the great sky-car factories in the Sahara to the gilded ice palaces of the poles, where the very young and very old indulged in civilization's most advanced vices.

And that infernal S3, which demanded instant attention, whether or not it fell within the standard consulting times. It was part of the contract of the Order A to be on tap always when some numbskull of a local thought his patient to be in danger. Sometimes a dozen times a day, in the middle of consultations, the screen would flush crimson and the warning 200-cycle throb demand instant attention.

Doctor Helberg grunted and drew from a small drawer in the steel desk a cylinder of thin metal and one of the old-fashioned smoking pipes which were popular before the simple vice was prohibited in 1960. Prying off the lid, the doctor carefully filled the pipe, lit it and dropped into a reverie. Only a couple of dozen tins left, and then, if he wished to smoke at all, he would have to pay exorbitant prices for the synthetic muck of the bootleggers.

"And we call this civilization," he muttered savagely and then cursed in irritation as the screen snapped into brilliance and a bell-like note sounded through the room.

"Madam Dorna Guiselle, World's Première Artiste, now presents to you a touch from the past in her latest hit, 'Sittin' in a Street Car.'"

The brilliance of the screen faded to a rich purple, which divided and formed into two curved side strips which, as the focus was sharpened, appeared as velvet curtains glittering with a thousand synthetic jewels. It was no mere picture. It stood out and one could almost have grasped the fabric, have plucked at the gems. Stereoscopic colored television certainly was near perfection, thought Helberg, as he composed himself for twenty minutes' agony.



"This three-way switch operates circuits, giving, first, Wentworth's natural voice; second, cut off at 1200; and, third, with oscillation harmonics."

A thousand cymbals crashed forth and then a voice roared:

"World Teletainments, barrier wavelength 11 decimeters presents Madam Dorna Guiselle."

Between the curtains a form materialized from a twisting spiral of multi-colored vapor. Second by second it became firmer and finally Madam Guiselle herself bowed before her audience, which latest statistics showed to be in the region of a hundred million.

The doctor drew methodically at his pipe and stared disinterestedly at the vision on the screen. Madam was certainly beautiful, from her tinted blue hair and startlingly white face down to her single-piece crystal shoes.

Beautiful she was undoubtedly, though probably this was chiefly due to her income from World Teletainments, Inc., which amounted to over ten million dollars a year.

Her voice rose and fell in an old-time theme, the craze of the moment.

"'Sittin' in a Street Car powdering my nose."

The actual words could not, of course, be distinguished, and between each stanza the voice yodeled up the scale in an astonishing manner, perfection itself as regards tonal value, but really rather terrifying in effect. Still it was regarded as the highest form of modern art, embodying, in subtle harmonics, all the violent passions of the earlier and more primitive world. Even the matter-of-fact doctor felt his pulse tingle at a particularly complex burst of crescendo and smiled ruefully at the vision of his client.

For ten minutes or so the song continued, but towards the end a puzzled expression grew upon the countenance of the doctor. With quick, nervous fingers he manipulated the intensifier until a magnified image of Dorna Guiselle's head and throat covered the screen. Carefully he reduced the sound until he could hardly hear the birdlike notes. His penetrating eye could almost envisage the vibration of the vocal chords and the slight modulatory effect of the speech cavities.

Surely something was amiss. The upper register seemed to be slightly lacking in brilliance. Not enough for one person in ten thousand to notice it, but the doctor had listened intently to every note from Dorna Guiselle's throat since she became "première artiste" to World Teletainments, Inc., and paid him, as greatest throat-and-lung specialist, an astonishing retaining fee for insuring her physical fitness.

To this end, World Teletainments had installed a special attachment to his consulting televisior, which automatically cut in whenever the prima donna appeared before their instruments.

Years back the use of tone controls for television and sound transmission had been abandoned by the manufacturers of receiving sets, since all modulation was carried out at the main studios and only first-class apparatus was permitted to tap the ether.

To the doctor's apparatus, however, was fitted a series of electrical filters, by means of which he could eliminate any frequency he desired.

He now turned to a graduated dial and set it at 1,300, by means of which all notes having a frequency below that number of cycles per second were filtered out, leaving only the harmonics or overtones. For a few minutes he listened intently and then reset to 6,000, which in the early days of television and at the end of the straight radio era was considered the upper limit of reception.

The faintest of sounds came from the screen and the doctor turned the volume control to maximum. Even then the notes, though piercingly high in pitch, could scarcely be heard, since their intensity was so low.

"Red Hades," murmured the doctor. "I've always been afraid it would happen. I must get there quickly."

Twenty minutes later his private skycar, bearing the blazing-fire cross of the medical profession, was piercing the atmosphere at a thousand miles an hour, on its way to Los Angeles, where the mighty studios of World Teletainments, Inc., were situated.

EL. NASH was a little known figure at the Science Club; in fact, that evening he had experienced difficulty in convincing the hard-visaged commissionaire that he had a perfect right to enter its sacred portals. However, this was probably due to his mode of dress, which, if picturesque, was scarcely to be reconciled with the rigid dignity of the thousand members—savants from all corners of the globe.

While most of his brother scientists were famous in their own particular branch of endeavor, Nash, on the other hand, was practically a recluse. In his own words, he "dabbled in science" to pass away the time, and never sought either glory or financial return for his efforts. Only a very few knew that it was he who had carelessly solved some of the stumbling blocks to commercial enterprise in the past decade. When their highly paid consultants failed, the powers of commerce seemed to drift with their troubles to Nash's ramshackle shanty. Usually they offered money, if this was their first meeting with him. Later, when they knew him better, they drew upon the complexity of the particular problem in which they were involved. If it piqued his fancy, he would solve it as a matter of course and forget about remuneration. How he lived, no one knew, least of all himself. He had a banking account, upon which he drew for his necessities, and somehow this never seemed to fail. As a matter of fact, it never would fail so long as his ability remained, for magnates were astute enough to realize that a Nash, without means for experiment, could not serve them next time. Thus it was a more or less understood thing that his balance was kept to the top limit.

The strange part about the man was that he simply did not think about it at all. Possibly, at the back of his mind, he guessed something of the sort was happening, but he did not trouble to probe deeper. So long as he had sufficient means to potter about, all was well.

Doctor Helberg found him sprawling in an armchair in a far corner of the lounge, apparently half asleep, with his tawny hair partly covering his face. This really should have barred him from polite society, since for many years all gentlemen had worn their hair cropped short, almost like convicts of the ancient times before the drastic vice eliminator had come into usage.

"Well, Nash, still burning the air, I'm glad to see." With some difficulty the lank figure levered itself upright and grinned.

"Hello, Doc, still spitting symptoms across the blameless ether?" Then with lazy annoyance: "What do you mean by dragging me here? This atmosphere of knowledge is overpowering." He waved stubby fingers, signifying the adjacent members.

"Sorry, Nash, old chap, but it had to be done," smiled back the doctor. "You see, we are entertaining a visitor."

"What's his trouble?" demanded Nash with some spirit. "I'm sick of listening to millionaires who can't double their money bags because they think skycars burn too much mobiline and such like drivel. Nobody in this darned world," he grumbled, "has been really up against anything hard and interesting for over a year."

Helberg drew his chair closer.

"Do you know Joe Schonberg?" he asked.

Nash shook his head dismally and signified that he had no particular desire to make the acquaintance of anyone of that name.

"He is the president of the World Teletainments, Inc.," went on the doctor, "and probably one of the three richest men in the world. Will you help him?"

"What's his trouble?" queried the other, yawning vaguely.

"As you should be aware, since the formation of the combine there are not more than a few hundred artists in the world, and some of them are under contract to Teletainments for salaries which are simply stupendous. In fact, the whole of the remuneration, which used to be distributed among the tens of thousands of actors and actresses, is now divided among these few. Each one of them is such an asset to Teletainments that no insurance company would risk covering their loss. Schonberg reckons that most of his artists represent stock value to him of at least a hundred million dollars."

"And the problem?" interjected Nash from the depths of the chair into which he had slowly relapsed.

"I'm coming to that now. Madam Dorna Guiselle is, at the moment, his star turn. She is paid ten million a year and is worth it to the corporation. There is no one on earth who has an equal frequency range in voice. As I know to my sorrow," the doctor added grimly.

"How?"

"I happen to be physician-in-chief to her ladyship. Every time she sings I have to listen and check on her response. Part of it is her own idea and the rest that of our friend Joe, who means to get his money's worth.

"For the past few months she has been a craze, an absolute obsession of the world. Men and women alike rave about her songs, though no one has ever found out what they mean. Last week I remember one of the mass teletheatres was sacked and burned by the audience because the reception unit failed in the middle of her programs.

"Two nights ago I detected a flaw in her upper register. Straightaway I went to the studio, tested her and found unmistakable symptoms of active leukoplakia, in all probability due to her colorful mode of living. She took it pretty badly and ordered me not to tell Schonberg. Of course, I had to; and when he heard he nearly became an S3 case.

"Clearly, if she loses even a ten-per-cent voice efficiency, he stands to drop millions, and if she persists in carrying through with her set programs, she'll not be able to sing a note at the end of a month.

"To put the matter in the eye-piece," Doctor Helberg concluded, "if she is to retain her voice, she must cease singing for three months at least, which will lose half the subscribers to Teletainments, who will be certain to take out licenses to the British Telsonores Company, who are boosting Dame Constanello. In a month's time the renewal fees for barrier wavelengths become due, so the matter is vital."

Nash shook convulsively in his chair till his straggling locks became mixed with his eyeglasses, when he

roughly scrubbed them back and grinned broadly at his friend.

"What the Red Hades is the matter with you?" demanded the doctor.

"It's so darned funny," chuckled Nash.

'Oh, it is, is it!' tartly. "You don't happen to be responsible for the Guiselle's throat!"

"I mean that a huge corporation, millions of money and the entertainment of practically the whole world, depends entirely upon the fact that a certain female possesses a particular degree of malformation of her throat, which enables her to make noises a bit different from those within the power of the average human being! And in the year 1980, too, when we have conquered the elements, eliminated crime, and even solved what the ancients knew as the 'Unemployment Problem.' Darned funny." He relapsed again into laughter.

The doctor was about to make some fitting reply to this hilarity when a commotion at the end of the lounge attracted his attention.

"Here's Schonberg," he announced. "For heaven's sake, don't make fun of him or he'll cause a riot."

A short, fat little man with a red face was poking round like a snub-nosed dog muttering, "Helberg, where the devil is the man?" in a voice sufficiently loud to draw the disapproving attention of the members. An attendant quickly slid up to him and with a glance around conducted Joe Schonberg to the corner seats.

Doctor Helberg rose to his feet and extended his hand in greeting, but the newcomer failed to notice it.

"Have you done it yet?" he demanded, and at the doctor's look of inquiry continued, "Fixed the Guiselle, I mean. I tell you it's got to be done if it costs a million. Fixed the *News Bulletin* by interview about influenza, but it won't last for more than a few days. Shares dropped three points at midday. What are doctors for?"

Helberg smiled wearily and gave a warning glance at Nash, who was liable to make outspoken remarks at the worst of bad times.

"I want to discuss the matter before a friend of mine, Mr. El. Nash," he replied. "The situation is difficult, but we will endeavor to find a solution—if there is one."

Schonberg stared at the unkempt figure in the opposite chair and nodded curtly. "Got to be one," he growled and then, "Are you a doctor?"

Nash raised his brows.

"God forbid," he ejaculated. "My nerves wouldn't stand it."

"Why then, Helberg, did you bring me here?" demanded Schonberg. "Plenty to do at the studio."

"Mr. Nash has solved many problems which sounded as impossible as this," returned the doctor coldly, "and may, if the matter interests him, advise in this case."

"What's he want?" Piglike eyes glittered cunningly.

It was Nash himself who replied with dry humor:

"Chance to say a few words, if you don't mind."

"Well?" Schonberg, with his millions, did not notice such small things as snubs.

Nash sank back comfortably in his chair and began.

"ENTERTAINMENT started to lose its balance when mechanized civilization came along. As soon as commercially minded men with money found, that by using pretty big courtyards and charging at the gate, they might make a bit, young Will Shakespeare began to get a swelled head.

"The theatres grew up and with them fancy prices for the front seats. About 1908 the old-time cinematograph started to become popular, and when a few years later the silly industry had gained big proportions, first-class artists took in more money than was good for them."

Schonberg opened his mouth to say something, but closed it as Nash proceeded airily.

"Of course the reason was the duplication of their parts by rolls of sensitized celluloid. Once an actor struck a sympathetic note with his audience he was in huge demand and, because his parts could be shown in a thousand halls at the same time, he wanted big money. Absurd, because he was no better than when he performed for a single audience.

"When the sound picture, with its recorded dialogue, became a commercial success about 1928—dates are approximate, of course—payment went higher because it was more difficult to get universal appeal with the two variable factors of speech and gesture.

"Broadcasting sound alone, by what they called radio, never held much money, though it was quite popular. People were not interested in voices when they could not see the performers.

"About 1960, when commercial television was generally adopted, the death blow to entertainment sanity was struck. Old-time movie houses were closed one by one as people bought home televisors. Duplication was magnified a hundredfold without the trouble of records either for gesture or sound. Both could be shot through the ether and delivered direct to anyone who would pay a few dollars for a televisor.

"Of course, the real blow came a few years after, when I was fool enough to do that work on the barrier wave for the Jenkins Company."

Here the doctor interrupted.

"I'm afraid I'm not *au fait* with that, though I heard you were behind it."

Nash shrugged and went on.

"Well, in elementary reception of radio waves, there was always a certain amount of overlap on both sides of the particular frequency being received. As more and more wavelengths were taken by various bodies, the ether became congested in spite of the extension of the range, both to longer and shorter lengths. Various selective arrangements were sought, band-pass coils, wave-traps and such like. Eventually these were developed to a reasonable state of efficiency from the point of view of the receivers.

"But, with the reception range being made world-wide, a new state of affairs came along. If a big company was formed for broadcasting news or entertainment in one country, how could it insure getting adequate income from the others, who tapped in as they felt disposed?

"As you know, the television tax tried to solve the difficulty, but it was absurd all along, since it cut out competition. What did one television broadcasting company care about the quality of its stuff when it was paid by the number of hours its aerials were working?

"The idea of the barrier is simple. At each side of a particular frequency along which transmission was taking place it inserted a strong interfering signal, which, under normal conditions, would completely jam the important one. These barrier transmissions could not be tuned out by any of the ordinary methods of trapping or band-pass circuits common to radio work. However,

I evolved a sensitive little filter, which could be set only under special conditions and was then heavily sealed against inquisitive fingers. Mr. Schonberg probably knows something about their rental."

Schonberg stirred uneasily.

"I bought that out from Jenkins," he grunted. "Said he was the inventor."

"So he was," grinned Nash. "But to carry on.

"As a matter of fact, the barrier transmissions were designed especially to prevent experimental tuning out. In fact, they are liable to rather upset exploring televisors if they get within the frequency band belonging to Teletainments. Anyway, all roundabout that frequency is unhealthy unless you are previously tuned dead on to the particular station.

"Why did we not tune right on to a station rather than interfere and tune out? Simply because tuning out was the more difficult proposition and more likely to prevent piracy.

"To get back to the general subject, this sent entertainment raving mad and World Teletainments was formed. The standard of performance naturally rose until only the two or three best in the world at any particular kind of fooling stood any chance of facing a transmitter. It might not have been so bad if the language trouble still endured, but since English had long ago become world wide, there was only one stage for acting.

"And now we've come to the point where millions are wrapped up in the throat and lungs of a single female," he concluded and smiled mischievously at the others.

"How does this help?" Schonberg struggled to his feet. "I keep quiet and you make fun at me and tell me what I know."

Nash waved a hand depreciatingly.

"All in good time," he rejoined, and such was the curious presence of the man that Schonberg slipped back to his seat.

"Doctor Helberg, can you put that woman right within a month?" he inquired.

"Impossible," replied the doctor, "in our present state of knowledge. Five years ago she could not have been cured with any degree of certainty. Now we can do it in nine cases out of ten, but it usually takes three months, during which time the patient is allowed to speak only through the medium of a throat impulse microphone."

"How long will her present standards of performance keep within the limits of detection by hearing?"

The doctor frowned.

"Another seven or eight days, I should imagine. Already there is a pronounced cut-off at 9,000 cycles per second, which has a faint detrimental effect on the sibilants and unvoiced consonants, which owe little to the vocal chords."

"What's that mean?" Schonberg was all attention.

"Speech is produced," explained the doctor, "by air forced through the trachea or windpipe terminated at the upper end by the larynx. This latter contains two muscular ledges known as the vocal chords, which form a sort of double door, through which the air from the lungs passes. In speech these chords vibrate setting-up sound waves, which pass up through the throat and then out from the mouth, picking up certain resonant sounds by virtue of the cavities and the movement of the tongue and lips.

"All speech sounds are produced in this manner, except those such as k, t, f, s, and several others, all of which are termed unvoiced sounds. These are actually formed in the mouth itself and owe nothing to the vocal chords.

"Now Madam Guiselle is suffering from leukoplakia—a forerunner of cancer, which causes contraction of the muscles, thus slightly changing the shape of the cavities and affecting the resonant sounds, which give to voice that subtlety that distinguishes one person from another. In a case like that of Madam Guiselle the throat larynx and mouth construction are unique and combine to form almost superhuman perfection. Thus the slightest change will alter the harmonics of her voice and, with the change, she will lose her supremacy.

"At the end of a three months' treatment, there is every chance of complete recovery. Any attempt at forcing matters by means of the knife would undoubtedly prove efficacious to her health but fatal to her powers as a prima donna. With an ordinary person, I should operate in a few days' time, and I would expect complete recovery in a couple of weeks. But here," the doctor shrugged his shoulders, "what can I do?"

"If you were careful," suggested Schonberg, "it might make no difference."

"Nonsense!" snapped the doctor. "The veriest internal scar would spoil Madam Guiselle's voice."

Schonberg's little eyes roved from one face to the other and became fixed on Nash.

"And Mr. Nash says nothing," he pronounced thickly.

"Oh, the solution? That is not particularly difficult, but it is rather complex. Quite interesting, in fact. I think it will be worth doing, though I should strongly advise you not to try it for commercial reasons."

"Do you mean, Nash, that you see a way out?" demanded the doctor.

Ignoring the question, Nash asked another.

"I suppose you have many photo-electric records of Madam's performances?"

Schonberg nodded.

"Taken with the 'Fulltone' apparatus up to twenty thousand cycles?"

Schonberg nodded again.

"Then it's quite possible," announced Nash.

"Don't be so mysterious, man," entreated the doctor. "What do you intend to do? You can't fake them with old records."

Nash grinned cheerfully and turned again to Schonberg.

"Suppose I found you a singer more perfect than Madam Guiselle. Would that serve your ends?"

"Impossible." Schonberg glared indignantly. "I spent a million dollars searching for the perfect voice before I found her. There is no other perfect voice."

"Wrong, Schonberg. No human voice ever has been perfect nor ever will be, but I'll undertake to provide you with a perfect singer who will televise drivel better than Madam Dorna Guiselle ever has done or ever will do, even when the doctor has finished patching her up. There's risk of duplication, but you must think that out for yourself. I am interested," with the supreme autocracy of the scientist. "You can give me your decision tomorrow through the doctor." He looked pityingly at the red-faced plutocrat choking for words. "If you're worrying over money, I'll mention that I require no fee, but expenses will all be booked to you personally, and

they may come to a quarter of a million or probably less. Good night. Good night, doctor; I may be seeing you tomorrow."

With these last words, he sauntered from the room, leaving two amazed men both wondering a little whether his genius was not too close kin to madness.

IT was two evenings later when Doctor Helberg groped his way along the packing-case-littered passage toward Nash's study. At least that was what Nash called it, though as a matter of fact it combined the functions of reading room, laboratory, workshop and quite frequently dining-room and sleeping quarters.

Adequate description of it would be out of the question. On a number of decidedly antiquated tables appeared a heterogeneous collection of scientific junk in various stages of disassembly. Nash had a very bad habit of pulling one piece of apparatus to pieces in order to build another. Quite often that destroyed was by far the more important. Still, that was Nash's way.

At the door the doctor paused and stared at the strange sight before him. Crawling about on the middle of the floor, he discerned Nash, his hair characteristically awry and with one slipper flapping from the toe of his foot. The other lay a few feet away, apparently having slipped off during his perambulations.

On the floor itself lay several large sheets of cardboard, with edges cut in what appeared a futuristic design for a new chain of mountains.

"What the red blazes?" exclaimed the doctor.

Nash sat round and wiped back his hair with a hand which held a formidable pair of scissors.

"Oh, it's you, doctor—take a seat." He gestured to the one chair in the room and proceeded to make himself comfortable on the floor.

"I rather expected you this evening. So Jos decided to give us a trial after all, did he?"

Helberg nodded grimly.

"Yes, after a dozen men had told him it was impossible to cure the Guiselle in ten minutes, in spite of his dollar punch."

Nash rocked to and fro on his haunches and grinned amiably.

"What's he say?"

"That you may go ahead; do what you like, spend what you want, but on no account to let him down."

"He did not by any chance mention that he was afraid of the consequences?"

Helberg shook his head.

"No, I remembered what you said, though frankly I haven't the ghost of an idea what it's all about. I shall be only too glad for you to do anything, if you can keep Schonberg quiet—and so I didn't remind him."

"The barrier was a rotten thing!" Nash ejaculated irrelevantly.

"What?"

"Maybe this will square the account. Schonberg and his crowd are swine—guinea pigs—they buy the land, then the air and now a large part of the ether. If they had their way, they'd put a rejector circuit on the Golden Gates themselves!" Nash rose to his feet and stretched his limbs. "Nevertheless, I'll serve them well and see how they like it."

He dragged a bench towards the doctor's chair and sat down, after recovering a box, properly the home of defunct coils of wire, transformer bobbins and such like rubbish.

"Go on!" he invited.

"I'm perfectly certain you can do what you said the other evening, because I've seen some of your previous work. But how? It's incredible that you can produce a prima donna in a few weeks."

"Surgically incredible, you mean," corrected Nash.

"Well," admitted the doctor, "the idea of what they used to know as 'plastic surgery' did cross my mind, though that's rather out of your line, isn't it?"

"Absolutely. I don't deal in the human variable. Anyway, it's out of the question, as you told Schonberg the other evening."

"I suppose you're not going to produce a robot prima donna?" inquired the doctor sarcastically.

"No." He was speaking slowly. "I shall require a woman—a good singer."

"That should be easy. Schonberg knows hundreds, but none so superlatively excellent as Dorna Guiselle. None that dare grace the studios of Teletainments."

Nash shrugged.

"Let him pick the prettiest then, or, for his own sake, the most discreet."

"And the idea? Is it too involved for my poor medical brain?"

"Hardly. As a matter of fact, it's quite simple and by no means new. Down there," he indicated the serrated sheets of cardboard on the floor, "I have repeated Humphries' experiment of 1930 or was it '31?"

"I plead ignorance."

"Humphries was the first man to create voice, to reproduce words which had never been spoken."

The doctor knotted his brows.

"He used the photo cell, didn't he?"

"Yes, but that's rather ahead in the story. Let's start at the beginning. Eugene Lauste, formerly in the Edison Laboratories, was probably the first to adopt a photographic strip as a means of recording and reproducing sound. He was followed, as you know, by De Forest, Case and a score of others, who developed the old-fashioned sound pictures. Substantially, we use their method today when we find anything worth recording. Mostly the stuff's so trivial that it is televised and lost to the blessing of posterity.

"In the old days they made a sound track on the side of the transparent celluloid strip that carried the cine images. We use paper tape now. The principle is the same, but we employ reflected instead of transmitted light.

"In recording, the sound waves striking the diaphragm of the microphone cause it to vibrate, thus changing the capacity between the diaphragm proper and a perforated back plate. This capacity change is impressed on a modulator, which affects a beam of light thrown upon the side of a sensitive tape.

"The modulator takes several forms. The commonest in use today is a modified form of oscillograph, where a beam of light, reflected from a mirror, traces out sound waves on the running photographic strip. The mirror is naturally coupled to the microphone through a bank of amplifiers.

"Something after the style of a seismograph record," suggested the doctor then as Nash nodded. "But what did you say about the Robot voice?"

"Well, so soon as the shape of sound waves began to be understood it was obviously possible to make them by artificial means. I've just done that in cardboard."

"I don't quite see the connection."

"Suppose I examine a strip of photo sound record and locate, say, the part representing the sounds 'A' and then 'T.' By determining the coordinates and abscissæ of the curves, I can construct them in cardboard to a magnified size and couple the two sounds together, forming the compound sound 'AT.' If I then photograph them down to normal sound track size and run them before a photo cell in circuit with amplifiers, I shall get reproduced the word which I have created out of fundamentals. Is that clear?"

"Yes," admitted the doctor, "but I can't see the connection between that and Dorna Guiselle."

"The connection is there all right," rejoined Nash, "though it's not a very intimate one. Have you ever examined a photographic sound record?"

"Not very closely."

Nash fished out a stub of a pencil and sketched.

"A single sound looks something like this—a wavy line with innumerable little peaks. Forget for a moment that the tiny peaks are there at all and we are left with straightforward waves. Have you any idea how many phonetic sounds there are in the English language?"

"Hundreds I should think."

"As a matter of fact there are only about forty broad typical sounds, though of course these are modified by the question of dialect. It would be quite easy, therefore, to construct an alphabet of sounds, incorporate them in a sort of glorified typewriter, and turn out sound records by punching the keys."

"The Dorna Guiselle question is a bit different. These typical sounds only range from about 80 to 1,200 cycles per second, while the human voice stretches right above 12,000. The tiny peaks on the main curves," indicating the sketch, "are the upper frequencies, the harmonics or overtones. As you told Schonberg, they give quality to voice and to Dorna Guiselle her supremacy."

Nash hopped off the bench, stretched his legs and began pacing up and down, carefully avoiding the "Voice" on the floor.

"You know how a frequency filter works?" he demanded at length.

The doctor shrugged.

"I use them every day in checking the Guiselle. I twist a dial and I know that all voice frequencies above or below the reading are cut off. It's a sort of variable resistance, isn't it?"

"Roughly," admitted Nash, "though usually you want to eliminate most of the resistance. A filter is just a tuned circuit—a condenser and inductance tuned to different frequencies. As you twiddle the knob, so you vary their sum. What would happen if you set the dial to 1,200 listening to Dorna Guiselle?"

"Simply I shouldn't hear her upper register at all," replied the doctor, who was getting a little tired of these cross questions.

"Ugh!" growled Nash with some irritation, "you wouldn't even recognize her voice. All the harmonics cut out, no top and the bass she scarcely touches. Get me?"

"Of course, but how the red blazes does this help Schonberg?"

Nash swung around, facing him, his eyes shining. Rapidly he jerked out the words.

"Dorna Guiselle is only Dorna Guiselle because of her queer harmonics. Cut 'em out and she's no one. Take another singer. Cut out hers in the same way and

then superimpose those of Dorna Guiselle! What do you get?" He paused dramatically and then went on as the doctor merely stared. "You get Dorna Guiselle's voice again in every detail. Then go better. Remove the faults from Dorna Guiselle's harmonics. Add them to the fundamentals of another singer and you have the finest voice in the world. Not human but perfect."

For a full minute the two men faced one another. Nash, brilliant and excited, the doctor just grasping the amazing statement.

"You mean," he asked at length, "to take another singer and filter off the peaky harmonics. Already having Dorna Guiselle's equivalent harmonics on record, you superimpose them and make two voices into one other?"

Nash nodded vigorously.

"But also we'll take out her faults—she has them like everyone else—and so we will get the perfect voice?"

"Red Hades," ejaculated the doctor, starting to his feet, "if you could do it!"

"Really, it's not difficult," murmured Nash, suddenly becoming languid, "just complicated. Every fundamental originates its own harmonics, which are modified to give expression by flexing or tightening the mouth organs. The harmonics of the singer I shall take will fix closely enough the grade of expression required, which is supplied by the selected harmonics of Dorna Guiselle. Corrected, I mean," he added quickly, as though shunning the idea of producing something no better than that of the most famous singer in the world.

IT was several hours later when Doctor Helberg stared at the ceiling from his multi-plunger pneumatic bed. His brain was a riot with ideas—some nebulous, some half formed. But back of it all he remembered Nash rattling off figures and materials, pointing out results on scraps of paper, absurdly certain of the results but always absolutely definite. It was more than an idea already. It was a projected design—almost a design itself. In the doctor's brief-case was a sheaf of papers. Instructions to be furnished immediately by Jos Schonberg. Nash wanted, nay, demanded, a complete block of World Teletainments studios cleared and fitted out with apparatus he listed. Men were to be borrowed or lured from laboratories all over the world. Every "Fulltone" record original of Dorna Guiselle was to be placed at his disposal. Lastly, he wanted a singer. The doctor smiled whimsically when he remembered Nash's words: "Singer—female—soprano—good but not so good as to become conceited—not fancy—about 27." There followed a few scrubby pencil marks and crossings out and then "Prefer blonde," written with care, as though Nash had finally decided upon this item after much deliberation.

HE met her for the first time five days later in the half demolished block at Teletainments Studios. Between times he had been too busy attending to Dorna Guiselle and preparing fake records of the progress of her supposed attack of influenza to be able to make the two hours' journey to Los Angeles.

It seemed Nash had been even busier, for the vast halls of the studios had been stripped of their garnishments and now resembled his own pig-sty of a place on a mightier scale. Apparatus was littered everywhere, and in the middle of a central hall was set a big projector facing a screen. The doctor noticed a dozen men

taking measurements over the face of the latter. Projected upon it was a terrific mountain range in black and white—part of some sound track.

Men in white overalls were rushing hither and thither grabbing new apparatus as it was dragged into position by sweating laborers. He overheard a man—evidently a charge hand—remark: "He wants twenty more screens up by next shift, and five walls have got to come down."

But all was silent in the room where he met Joyce Wentworth. Walls were covered with heavy sound-absorbent layers, and at one end a microphone hung from its boom, while at the other an enormous bakelite panel gleamed with hastily fitted meters and controls.

All this he noted subconsciously as the burly guard at the door pushed him in. For the girl was singing. Not the hard, brilliant voice of Madame Dorna Guiselle but something softer, more human, that savored of days long before top frequency became the standard of the prima donna.

Nash came forward as though on ill-working springs, with hand outstretched.

"Meet Miss Wentworth—Doctor Helberg."

As the doctor bowed he felt an absurd desire to congratulate Nash on the last phrase of his specification for a singer. For Joyce Wentworth's hair was blonde indeed. Not the dull purple gold so favored about that time but fair as the gleam of the sodium ray or as memory stuttered, like the corn fields he knew long ago.

Nash, oblivious to his friend's attempts at polite banalities, grasped him by the arm.

"I've something to show you. It's all right, Miss Wentworth." He dismissed her curtly. "Back in an hour, please, to check on results." Then to the doctor: "Just a moment." He stepped to a wall communicator and bawled at the microphone, "Volume indicator No. 3 is useless. It is nearly point 1,003 decimals in error. Get another put in its place immediately."

"You certainly seem to have shifted," remarked the doctor as Nash regained his side, "and have been fortunate in your singer. Miss Wentworth has a nice voice."

Nash shrugged his spare shoulders.

"You should see her harmonics. Shocking overlap. She'll do, however. Her voice has plenty of expression, though I'm not sure I want much after all."

"Have you been able to get any experimental results?" asked the doctor, "I suppose you've been too busy getting the apparatus in to do any real work."

Nash shrugged again.

"What I've done has been satisfactory—of course. Like to hear a test run?"

They hurried through the central projector hall into a smaller chamber, the walls of which were decked with huge photographic prints of sound records. Several men were adding to the collection as though their lives depended upon the job.

"Look here," Nash indicated three six-foot long prints. "This represents part of a single sound pronounced by Dorna Guiselle and Miss Wentworth. It was recorded by the 'fulltone' process having an effective response up to twenty thousand cycles per second. See the difference?"

The doctor nodded.

"Dorna Guiselle's is more peaky. I suppose that is due to your precious harmonics?"

"Yes, yes of course. But don't you see the significance?" Then as the doctor merely stared, "The full

line is the fundamental wave and the dotted one the mean through the harmonic area above the fundamental. You must be blind, man, if you don't see the dotted lines are similar and both reduce to the same curve! Plotted to a common base they show only difference due to experimental error." His forefinger pointed out a lower curve under which was printed "HARMONIC INDICATOR". This curve can be derived from either the voice of Dorna Guiselle or Wentworth—it is common to them both. There, from either voice I am given a factor which will enable me to choose harmonics from records of the other."

"You'll have to explain further, I'm afraid," remarked the doctor drily. He did not like the way Nash referred to Joyce Wentworth.

Nash almost danced in impatience.

"Harmonics are expression, emotion—joy, sorrow, hate, love, greed and all the rest of them. The curve of the harmonic indicator is the curve of emotion. Wentworth sings into the microphone. I filter off the harmonics, leaving the fundamentals below, say 1,200. The harmonics are automatically integrated by light before a photoelectric cell, which gives pulses proportional to emotion, expression or whatever you like to call it.

"These, after suitable amplification, are impressed as a modulator upon a very delicate oscillator having a range from 1,200 to 20,000 cycles per second, which thus differentiates the flat curve into its component frequencies. The resultant speech current is then added to the fundamental from Wentworth and the composite current goes to the main soundcast amplifiers.

"Aren't you as badly off as you were at first?" asked the doctor with a puzzled frown. "You seem to have cut off the top of Miss Wentworth's voice and then elaborately put it back again."

"Rot!" snapped Nash. "I cut her off her top, if you like, but then I add a fresh one. Not Dorna Guiselle's even; scientifically perfect frequencies as can be obtained only from a thermionic oscillator. It is the perfect voice."

"Um," admitted the doctor, "but does it work?"

"You shall hear." Nash grabbed at a man working near by. "Call Miss Wentworth immediately—tell her to go to the filter room."

The doctor started to remonstrate, but Nash dragged him along, talking volubly all the time about the faults of Dorna Guiselle's voice.

The filter room was practically empty, though engineers were busy laying heavily sheathed cables in trenches ruthlessly hacked into the mosaic floor. At one end was a roughly constructed soundproof chamber something like the camera booths used in the old days of talking pictures. Inside was a single microphone suspended from its cord.

"I've only had time to construct a temporary oscillation modulator which is sensitive to a single sentence. The main instrument is being made as quickly as I can get off the harmonic curves."

Nash pointed out a trestle bench on which was arranged a fearsome jumble of apparatus quite evidently made by his own hands. But the doctor was looking the other way, for Joyce Wentworth had just hurried into the room. She hastened towards them, mild inquiry written on her countenance.

"Yes, Mr. Nash? You want me?"

"The same lines—repeat to the signal as before. And don't blow us out of the room this time." Nash called

over his shoulder as he made some adjustments to the apparatus.

The doctor frowned heavily. He felt disgusted with his friend, that he should be so wrapped up in a problem as to lose his sense of chivalry. After all, it was only an experiment. He pulled himself together with a jerk, remembering it was he who had started it all. But Nash was speaking to him.

"This three-way switch operates circuits giving first, Wentworth's natural voice, second, cut off at 1200, and third, with oscillation harmonics."

He threw the switch into the first stud and pressed the indicator button.

From a large condenser transmitter standing to one side of the room burst a short crescendo:

"How can I live without you"

The doctor felt his blood tingle at the delicate expression of Joyce Wentworth's voice. Nash threw the switch to the second position.

Again came those same words. But this time they were shorn of expression; they were clear but lifeless—the voice of a robot. He shuddered slightly. They seemed to symbolize science, cold-blooded and brooding over the destinies of man.

The switch clicked again and once more came the voice. This time it swept through the room like a monster wave of emotion. It crushed the brain with its brilliance and wrenched the heart strings with pathos. Not the voice of man, nor even of science. But the voice of a god. It died away and the doctor looked ashamedly at his palms, where the nails had bitten deep.

A broad chuckle caused him to swing around angrily. Was Nash a demon that he could laugh at such things—snigger at the great moments of life?

"Steady now," Nash patted him on the shoulder, "it is rather unbalancing at first to the young and innocent mind. Still, it proves the idea, don't you think?" with mock humility.

The doctor breathed deeply.

"What a voice!" he gasped.

"Merely little Miss Wentworth," remarked Nash airily and attributed the glare he received to some other reason.

"**H**ALLO, HALLO, NEWS BULLETIN." The sonorous words reverberated through the doctor's breakfast room and he paused in manipulation of the synthetic marmalade, and gazed towards the televisor screen, which depicted a fat man shouting through cupped hands. The unpleasant vision vanished and the voice continued alone in slow phrases between each of which came a dull boom supposed to emphasize the authority of the International Newsvisor.

"JOYCE WENTWORTH BLISTERS THE ETHER—
BOOM.

TELETAINMENTS PRODUCE GREATEST SINGER
EVER—BOOM.

"WHAT PRICE DORNA GUISELLE—BOOM.

"RED HOT AERIALS—WHOOPEE—BOOM.

"MOBS IN FRANCE STORM MASS THEATRES—
BOOM.

"INDIAN PRINCE OFFERS TEN MILLION FOR HAND
OF PRIMA DONNA—BOOM.

"JOYCE LOVES ANOTHER—BOOM—BOOM."

WITH an imprecation, the doctor flung himself at the switch and silence dropped like a knife.

Nash had succeeded. Schonberg already was worth many more millions. It was stupendous. Joyce Wentworth, in a short hour, had swept the world like the morning sun. He himself was vindicated of negligence of Dorna Guiselle. He should have been pleased. Instead, he found himself in a black rage. Why?

For the past ten days he had avoided the studios of World Teletainments, though he would have given much for a sight of Joyce Wentworth. But he hated to see her as a cog in the infernal device of Nash or as Schonberg's gilt edged stock. She was ordered here, there and everywhere. Guards followed her every moment. Schonberg had heard the voice and was keyed to fever pitch. He would not incur the slightest risk to his plans, and most of the day kept within arms' reach of the girl. She had her meals with him and all the food was subjected to analysis. And this, in spite of the jeers of Nash!

That she should have been subjected to this treatment was bad enough but now—. A Hindu wanted to buy her! But she loved another. Doubtless she would find a suitor after last night!

In ten minutes after her appearance before the televisor the world had gone crazy. Those emotional fools in France had even forgotten they were looking at a mere image and had smashed the instruments in their excitement.

"Joyce loves another," the words drummed through his head. Who was it? Nash? Schonberg? Absurd.

Abruptly Doctor Helberg rose to his feet. He must see her immediately. But that was impossible. That night then. He pressed the button of the wall microphone.

"Skycar at four o'clock for Los Angeles," he ordered thickly and walked with heavy step to his consulting room.

But it was well past five o'clock when Doctor Helberg climbed into the tiny saloon of his private skycar and adjusted the pneumatic side grips. He had had a bad day. Four S3 cases in the morning, rendered especially awkward owing to a magnetic storm about mid-Atlantic. Then, to cap everything, just as he was prepared to leave, a frantic call came to his nursing home. Dorna Guiselle was missing. She had vanished in spite of the careful guard maintained originally to prevent the intrusion of press agents. For an hour or more the doctor had searched all the likely places without avail. Even the International Detective Agency, which boasted that it could locate any famous or notorious citizen within twenty minutes, confessed itself beaten after three quarters of an hour of ether stabbing.

Helberg felt worried, although it was no longer of paramount importance that Dorna Guiselle should be kept from the inquisitive eye of the public. Her condition was not serious, indeed she had progressed far more quickly than he had dared to hope. She was practically as normal as an ordinary person. Only her voice had not yet regained its brilliant power. Still, no one cared about that now. Joyce Wentworth had eclipsed her forever.

Thought of Joyce caused him to fall into a reverie. What had he to offer her? True, he was one of the richest of his profession but what was that compared to the salary of the prima donna of World Teletainments!

Besides, he had scarcely spoken to the girl. A few glances, a word or two was all that had passed. He was a fool. For a mad moment he thought of turning back, but forces stronger than logic held him silent.

It seemed hours before the blaze of lights heralded the approach to Los Angeles, now as ever the center of the World's Entertainment. Gazing out of the windows, the doctor saw a controlled skywriter flare into a red splotch of light, which rapidly extended into a fiery line. Mechanically his eyes spelled the words as they were traced:

JOYCE IS HERE

THE skycar landed noiselessly and he followed the uniformed guard along to the central offices. Jos Schonberg glanced up from a huge desk as he was shown in. "Ten points in an hour and a half," he muttered, casting another glance at the stock indicator to his left.

"Evening Helberg; I'm busy."

"I suppose so," replied the doctor coldly, "but it may interest you to know that Dorna Guiselle has vanished."

"Let her."

"Is she likely to cause trouble? The *News Bulletin* has treated her pretty badly."

Schonberg shrugged his heavy shoulders.

"She never was much good, anyway," he stated calmly. "Wentworth is much better."

The coolness with which this preposterous statement was made took the doctor's breath away.

"If she comes here—" he petered off lamely.

The piglike eyes of Jos Schonberg glittered evilly.

"She'll git back quick and take a long ride," he grated, "two more nights and I'll be able to buy up the British people and I don't stand interference." He paused and then resumed in more conversational tones, "but you'll like to have a look over the new block I guess."

An attendant appeared as if by magic and ushered the doctor away. Glancing over his shoulder he saw Schonberg hunched once more over the market chart with its ever changing row of figures. For a moment the doctor had a vision of a snarling cur protecting a filthy bone. That was Jos Schonberg, President of World Teletainments. Dorna Guiselle had served her purpose and had been flung aside useless, without even a single thought of gratitude.

As he passed through the spacious halls he noticed the burly guards at each entrance. When they entered the new block he was forced to wait until the door-keeper received the O. K. from Schonberg himself.

They experienced some difficulty in locating Nash, but eventually ran him to earth in a small room originally intended for storage but now converted into the semblance of an office. Nash himself was crouching down in a richly gilded armchair making notes on a pad lying upon the seat of another chair drawn conveniently near. He dragged himself to his feet as the doctor entered.

"Hello, Doc, I've been expecting you for some time. Where've you been? How's the diseased world getting on?"

Helberg smiled his greeting. Nash was his old self again, lazy and untidy, the moment a job was finished.

"Did you notice anything of a magnetic storm as you came along?" Nash looked worried.

"No," the doctor shook his head, "Why?"

Nash grinned amiably.

"There's a fellow who complains that all his postal rockets arrive twenty minutes late round about the end of each month and I'm wondering—"

"What the Red Hades are you talking about?" cut in the doctor. "What's that to do with the perfect voice?"

"Nothing," admitted Nash, "but I've got an idea that these storms cause closing in of the Heaviside Layer which by cumulative effect diverts the direction of the power beam. Hey, what's the matter?" as the doctor grasped him firmly by the arm.

"You are showing me around, my man," Helberg strove to keep his voice humorous but nevertheless there was a trace of suppressed excitement which Nash was quick to detect.

"She'll be off in about fifteen minutes," he grinned, leading the way to the door. "We'll take a look at the filter room. Miss Wentworth will be pleased to see you again. She's been inquiring about your attainments." He coughed. "Perhaps she's thinking of engaging you as her physician-in-chief."

To which remarks the doctor made no reply.

The filter room presented a very different appearance to that of a week or so back. It was now practically filled with long racks of apparatus from which shone numerous pilot lamps. All one end was closed in by a thick glass screen, behind which glowed dully scores of thermionic tubes. Suddenly a large red globe flushed bright and a slight hiss became noticeable.

"Cut down that volume," Nash snapped behind his back. An operator made a quick adjustment to a potentiometer knob and the sound diminished and faded right out. Out of the silence came a voice.

The words were silly, trivial—but the voice. Again the doctor felt the thrill of vocal perfection. Doubtless many millions all over the world were experiencing similar sensations. Even the stolid operators at the meters and switches glanced furtively at the flat face of the condenser speaker, as though wondering if such sounds really came from a thing of copper and beryllium.

"Let's go; the thing's uncanny."

Nash chuckled and led the way to the heavy steel door, which noiselessly closed behind them. Up an escalator and along a corridor they went, emerging finally on the studio anteroom. Guards barred their progress and even Nash was subjected to close scrutiny. Schonberg was taking no chances.

The anteroom itself was a long chamber, to one side of which were twenty or more studios, each with its own televisor. Modern audiences demanded constant variety of setting and thus each item of a programme was allocated to a specially prepared studio. To the other side of the anteroom was a huge mixing and monitoring laboratory with its scores of small cubicles. In each of these sat an operator watching a small television screen upon which the running item was received after re-televising from a distant point of the globe. The cubicles bore the names of the different cities. London, Paris, Pekin, Petrograd, Vienna, and the wonder town of Industuron were prominent among many others.

It was the business of each operator to keep a minute check on reception at the far points, and to this end he was supplied with a series of sound and light filters, which could be cut in and out at will. Further it was possible to make a permanent record of any part of the programme by simple depression of a switch.

In the monitor room, too, were the battery of mixers which added accompanying effects and sometimes blended one scene with another. There, also, the circuits were completed for the wonderful outdoor shots which were rapidly becoming popular.

Nash explained the process of televising casually.

"All this stuff is ordinary," he remarked. The lines from the televisors in each studio run to a common board where any wanted effects are added. Sometimes they use orchestras in the studios themselves but more often dub them in from the great hall down below where they can easily accommodate a thousand pieces.

"As you know, the entertainment is more or less continuous throughout the twenty-four hours of the day. So at the opposite sides of the studios is the settling chamber allied to the workshops. Men are working there all the time, preparing different sets.

"Reverting to the common board—this has output leads normally running to the synchronizer in another part of the building. For our job, however, we shunt the sound to the filter room and it goes to the synchronizer after the addition of the harmonic oscillations."

"How do you change from direct to filtered speech?" asked the doctor.

Nash grinned.

"That is automatically controlled from a pre-set twenty-four-hour flasher. Programs are worked out to the minute for each twenty-four-hour period, and thus, at the precise instant that Miss Wentworth's cue is given, the filter is thrown into action."

"Surely that's a bit dangerous!"

"Not at all," Nash laughed curiously, "providing our friend Jos keeps exactly to my instructions. I have told him that on no account must he deviate from a program without my express permission. By automatic switching I eliminate the variable factor of an operator. All my apparatus in this building is entirely automatic."

"And yet," reminded the doctor, "you depend upon Miss Wentworth for your effects. All your admittedly wonderful filters simply improve an already excellent voice."

It seemed for a moment that Nash was about to defend his invention. Instead, however, he struck a comic attitude.

"The sahib has spoken and thus so must it be!"

During this time they had been standing in the monitor room; now they turned toward the anteroom.

"How is it," asked the doctor, "that in here we can't hear the loud speaker in the anteroom, although there is no door?"

"You see those ornamental spear points round the arch," Nash stretched out a finger. "Well, diagonally between them is drawn a sound nullifying barrier. In principle, it's not unlike those used in broadcasting except that it acts at audio frequencies. Try the experiment of putting your head through."

Obediently the doctor stepped forward through the arch. Suddenly he stiffened, shouted to Nash over his shoulder and plunged into the anteroom.

Nash, hearing nothing through the sound nullifier, dawdled after him. But once in view of the antechamber, he too quickened his step.

A tall female figure in black stood before Jos Schonberg, pointing an accusing finger.

"You twister, you rotten twister." The voice wavered dangerously on the verge of hysteria.

Dorna Guiselle!

The doctor took a pace forward, but she brushed him away with a wave of her slender hand.

Jos Schonberg smiled evilly.

"My dear young lady," he began, "you should not be here—"

"Yes, I should be at home still, if your agents hadn't robbed me! What have you done with my contract, you thief?"

Schonberg continued to smile, but his thick lips curled in a snarl.

"What do I know of a contract?" he demanded. "You are not yourself. You must go back."

"Go back when you have robbed me!" Dorna Guiselle laughed shrilly. "You and your Wentworth girl have cheated me. You cut me out and that is not enough! You steal my contract." Suddenly she drew close to Schonberg. "Give me my check for the remainder of the year and I will go."

"I give you nothing. Get out." Schonberg ceased to smile and signaled to the guards standing ominously in the rear. "Ah, would you!" His foot shot out viciously and Dorna Guiselle slipped to the floor, the knife still clenched in her hand. "Throw her out," he shouted, and the burly men stepped forward.

From the speaker at the end of the anteroom burst the first lines of a song and, held by the perfect voice, the actors in the drama paused. Even Schonberg was for once off his guard.

In that instant Dorna Guiselle leapt to her feet and was across the room.

"Stop her!" The doctor sprang madly in pursuit. But she had a split second advantage and was through the studio door before the doctor reached it. And above that door burned the red star signifying that Joyce Wentworth was singing to the world.

A scream rang out. All was confusion. Nash alone remained where he had been standing, a hard smile on his lips. Through the open door he saw the doctor supporting Joyce Wentworth, from whose breast a red stain already had appeared. With the other hand he strove to hold back a mad fury. For in that instant Dorna Guiselle was indeed mad.

Suddenly Nash caught sight of Schonberg. Galvanized into action, he leapt forward. Too late. With a pistol snatched from one of the guards, Jos Schonberg deliberately shot Dorna Guiselle before the eyes of the world. For the televisor was still working.

The cold-blooded horror of the thing froze the on-lookers more than Dorna Guiselle's frenzied attack upon her successor. But Schonberg himself remained comparatively calm.

"Cut off the visor," he bawled, and a scared operator ran to the monitor room. "Clear the studio," and guards sprang to do his will.

The doctor was bending over the form of Joyce Wentworth, rapidly making an examination.

He roughly shook off Schonberg's hand.

"Can she go on?" demanded the president of World Teletainments.

"You swine!" The doctor spun 'round. "She'll

never sing for you again—even if she lives," he added softly, turning his back.

"Quick!" Schonberg held the floor. "Cut in the next item immediately. I can explain that part of another drama got mixed."

"Sir!" Half a dozen operators from the monitor room stood in a frightened group behind him. "Paris, London, they're all calling." Another ran up "O I International Police are calling."

Schonberg glared around him.

"Cut off all receivers and put full power on the barriers. And get back to your posts." His voice rose to a shout.

A white-faced engineer stepped forward.

"All ready for next item, sir," he stammered.

"Cut in," ordered Schonberg, a slow smile creeping over his features. It had been bad business, but not as bad as it might have been. Joyce Wentworth was not badly injured, he was sure. In a day or so she could continue. Perhaps sooner, if he applied hypnosis. The murder was nothing. He could fix that. As for the scene being broadcast, he was already half way through a scheme whereby he might turn it to profit. Dorna Guiselle would trouble him no further. Joyce Wentworth was content with a comparative pittance. His lightning thought broke off. Nash stood before him.

"Schonberg," Nash's usually languid voice rang out, "you're a swine, a thief and a murderer, and now," with deliberation, "you're being a fool."

A fool. What did Nash mean, when everything could be arranged? But what was that? Schonberg went rigid, his eyes bulged.

For from the loud speaker broke out the dialogue of the comedy which formed the next item in the programme. The voices were not the rollicking ones of comedy, however, but of magnificent opera. The perfect voice. What was wrong? Was he going mad? He shook his head, but still the voices continued in brilliant, unearthly perfection. He stared at the others. They, too, were gripped with amazement. Only Nash was not impressed.

"Schonberg, you're a fool!" The words rang out again. "You've killed your golden goose." Nash suddenly laughed and there was ridicule in his voice. "World Teletainments and Jos Schonberg," he sneered. "The perfect voice is the voice of science. *There is no human variable.* All voices are equally perfect. Put your guards in there, Schonberg; let them sing! Yes, even you, Schonberg, can be a Caruso!"

There was silence, except for the splashes of comedy from the speaker. Nash turned to the doctor, who was supporting Joyce.

"Come," he said softly. "We have all finished here."

The guards stepped aside as the trio advanced. At the door Nash turned and faced Schonberg again.

"The monopoly of entertainment is over, Schonberg. With the barrier wave I gave it to you and with the perfect voice I take it away. You might have kept it—you fool."

Nash turned on his heel and followed the others.

ANY high school student of chemistry knows that carbon dioxide is made by adding sulphuric acid to marble dust, which is almost pure calcium carbonate. This combination forms calcium sulphate and water and releases the carbon dioxide gas. It is also known that any process of expansion takes heat away from the surrounding space. If this expansion takes place very swiftly, the gas is cooled quickly. The cooling might be so great as to change the carbon dioxide gas into snow—or what is otherwise known as “dry ice”—a product now used extensively for refrigerating purposes. But like many another highly scientific commercial product, it can be used for disastrously ulterior motives by a clever chemist who is so minded. This is one of the very few detective stories that we have ever read which is truly a scientific narration.

The Master of Mystery

By Bob Olsen

Author of “Four Dimensional Roller-Press,” “The Man Who Annexed the Moon,” etc.

Illustration by MOREY

CHAPTER I

A Perplexing Puzzle

MURDER?” Justin Pryor protested. “I’m afraid murder is a bit out of my line.”

“But it wouldn’t be the first time you had tackled a murder mystery,” Hamilton persisted.

“What on earth are you talking about? I’ve never tried to solve a murder mystery in my life.”

“Oh, yes, you have. How about the murderers you scotched last year when you isolated the bugs that were causing that gizzard disease among the chickens at Petaluma? Weren’t those germs assassins? Weren’t they murderers until you caught them red-handed and showed the authorities how to get rid of them?”

“I see what you are driving at. But real murder—human murder—that’s entirely different.”

“I’m not so sure about that. It seems to me, practically all the jobs you handled have been murder mysteries. For instance, in one case you discovered a flaw in a manufacturing process that ruined sales and killed profits—in another you laid your finger on a condition that was destroying the morale of a sales force. When you come right down to it, the general principle was identical in each of those instances—something was killing something and it was up to you to locate and destroy the culprit. I’ve heard it said that you’ve never yet failed to solve any problem you’ve tackled. That’s why they call you the Master of Mystery.”

“Never mind the flattery,” Pryor laughed. “I guess I’ve been lucky, that’s all.”

“If you think I’m handing you grapefruit, listen to this, old dear. Great as your reputation for success in unraveling puzzles is, I’m willing to lay you a substantial bet that even you can’t solve the mystery of my uncle’s death.”

“Are you trying to dare me into taking the case? You ought to know me better than to think any such tactics as that would influence me, and you ought also to know that it is strictly contrary to my principles to bet.”

“Perhaps you won’t take the dare and I didn’t expect to coax you into a wager, but suppose we put it this way: You’re fond of working out puzzles, aren’t you?”

Pryor nodded.

“Of course you are. Everybody knows that. You’d rather work on a cryptogram or a problem in higher mathematics than play golf or attend a good show.”

Again Pryor signified his assent.

“Well, then—here I’m bringing you the greatest puzzle that you or anyone else ever heard of and you deliberately sidestep it. You won’t even take the trouble to get the story.”

“Excuse me,” the Master of Mystery interposed. “But aren’t you taking a lot for granted? I told you that murder is out of my line, to be sure, but I didn’t say I wouldn’t listen to the story. On the contrary, I’d be glad to hear it.”

“All right,” Hamilton resumed, “and when you do hear it, I’ll bank on it that you’ll say I was right when I called this the greatest puzzle that was ever heard of.”

“Very well! Proceed.”

Hamilton proceeded. “In the first place, the room in which my uncle’s body was discovered was locked from the inside. Not only that, but all the windows were also fastened on the inside; also, every opening large enough



... "Here, Lieutenant! Give me a hand here, will you? Take hold of that other shoulder and push his head down against the pillow."

for a human being to pass through was protected by the most modern and efficient system of burglar alarm—which was not disturbed."

Pryor interrupted him with, "I'm afraid the plot of your story is somewhat hackneyed. There's nothing new or even puzzling about a murder victim being discovered in a room that was locked on the inside. There are at least a score of ways that a murderer could get out of a room and leave it locked on the inside."

"Not this room," Hamilton insisted. "The schemes you refer to for getting out of a room and leaving it locked on the inside all depend either on turning a key from the outside or else making use of some secret mode of exit. The most common method is that of grasping the end of the key with a small but powerful clamp with jaws like those of a curling iron."

"That couldn't have been used in this case for the simple reason that there was no key in the lock. *The door was bolted!*"

"That doesn't make it any harder," Pryor asserted.



"A bolt can easily be shot into place by means of a powerful electric magnet. Perhaps you do not know that a strong magnet will work even through a panel of wood or other insulating material. No true insulator of magnetism is known."

"Why, of course, I know that. Maybe I'm not so dumb as you think I am. For instance, another thing I know is that a magnet will attract only iron or steel. It happens that the bolt which fastened the door of my uncle's room was made of brass."

"You don't say so!" Pryor exclaimed. "Now that's interesting—extremely interesting."

"I'll say it is; and there's a lot about this case that is even more interesting and a heap sight more puzzling."

"For instance, the fastenings on the windows were all of a special burglar-proof design. There is no possible way in which they could be opened or closed, except by a person *inside* the room."

"In addition to this, as I said before, the only door, all the windows and every other opening large enough to admit a human body or even a small animal, were all protected with a very efficient burglar alarm. *And this alarm was not disturbed!*"

Pryor then asked, "And are you sure there were no hidden panels, no trap doors nor secret passageways, through which a person could have departed from the room?"

"I think we can safely eliminate any of those melodramatic props from our talking picture. Two of the cleverest detectives from headquarters have been over the room with a fine tooth comb. They have tested every panel in the walls, every board in the floor and every square inch of the ceiling. Also they have carefully checked all the space in the adjoining room and have accounted for every cubic centimeter of space."

"Are there any closets in the room?"

"Only one. Naturally the detective checked the walls, floor and ceiling of that closet with particular care."

"I think I'm pretty familiar with the room myself. I'd be willing to stake my life on the statement that it was absolutely impossible for a person to murder my uncle and get out of the room, leaving it in the condition in which it was found."

"How about the possibility of a person hiding in the room until after it was forced open and then escaping unobserved?"

"That possibility is out too. After waiting for over a day for my uncle to make his appearance, the Filipino house-boy rapped on the door. When he received no response, he phoned for the police. Two detectives and one policeman answered the call. The policeman stood guard at the door, while the two dicks searched every nook and corner of the room and the closet. The house has been kept locked and guarded ever since."

"And your uncle's body was discovered when?"

"The day before yesterday."

"Hm, you say that it was absolutely impossible for a person to leave the room as it was found. You also insist that no one could have hidden in the room and gotten away unobserved after the room was opened. According to that, one would infer that your uncle was not murdered at all. Perhaps he committed suicide."

This was greeted by a loud peal of laughter. It was a coarse laugh—the kind of laugh which movie gag-men call a "belly laugh."

When Hamilton had finished his cachination he snickered, "Excuse me for giggling, Pryor, but your sugges-

tion that uncle must have committed suicide was so ridiculous that—" and he allowed himself to be carried away with another spasm of laughter.

Pryor was offended. He made no effort to conceal his disgust.

"I must say your sense of humor is somewhat depraved, to say the least," he reproved his visitor. "Joking about your uncle's death, whether by murder or suicide, is not exactly what I'd call good taste. Furthermore, I see nothing particularly ludicrous about the suggestion that your uncle might have committed suicide. Men have been known to take their own lives, you know."

"After which I'm supposed to consider myself squelched," said Hamilton. "But if you don't think I have any right to laugh, let me ask you something, Old Fruit."

"All right! Fire away."

"Have you read the account of the case in yesterday's newspapers?"

"Only the headlines. Murders, suicides, accidents and other stories of violent deaths don't interest me. I seldom read beyond the headlines of a news article of that sort."

"That accounts for your failure to see the joke. If you *had* read the newspaper account of the finding of my uncle's body, you would know that in order to commit suicide he would have had to bash himself in the face with some heavy object, forcefully enough to crush his own skull. After doing that, he would have had to get up and dispose of the weapon in such a way that the detectives couldn't find hide nor hair of it after they forced their way into the locked room."

"What's this you're telling me?" Pryor exclaimed. "Do you mean to say that no weapon was found in the room?"

"Nary a weapon."

"And that your uncle's skull was crushed in as if he had been struck with considerable force by a heavy object."

"Exactly."

"This is interesting—intensely interesting."

"Then you agree to take the job of investigating the case?"

"Try and keep me away from it," said Pryor with a determined grin.

"That's great!" Hamilton enthused. "I didn't think the famous 'Master of Mystery' would turn down a chance to tackle the most baffling puzzle that ever happened. And here's one case where the 'Master' will have to give it up."

"Think so?"

"I'm sure of it."

"Are you sure you are sure? Now I am curious to know just *how* sure you are that I am going to flop on this job. Let me see—I believe you said something about a substantial wager."

"Sure! And you hedged with the remark that your principles are strictly against betting."

"They are—against betting for money. But suppose we make a wager without any monetary consideration."

"What do you mean?"

"Suppose we say, for instance, that if I fail to solve the riddle within thirty days, I shall agree to be your slave for one day and that I obligate myself to do whatever you command me to do for twenty-four hours. If

on the other hand I succeed, then you will become my servant and will do whatever I tell you to do for a period of twenty-four hours."

"That's O. K. with me!" Hamilton concurred.

"Very well then, it's a bargain."

CHAPTER II

Significant Backgrounds

IN order to comprehend the full significance of the foregoing conversation, a knowledge of the backgrounds of Pryor and of Hamilton will be helpful.

Justin Pryor had first come into prominence when he was in charge of the research department of Wright and Underwood, the well-known advertising agency.

So successful had he been in unraveling complicated snarls in the manufacturing and selling problems of his employers' clients that he had repeatedly been asked to help overcome the difficulties of others. This led to his establishing a small business of his own.

The gold letters on the door of his office spelled out the modest title:

"JUSTIN PRYOR

MERCHANDISING COUNSELLOR"

Some one who knew him well had once referred to him as "The Master of Mystery," and to those who were familiar with Pryor's attainments, this appellation seemed to fit so well, that they insisted on using it even against his vigorous protests.

One of the firms which had repeatedly called on Pryor for assistance was the Zolo Chemical Company, of which the murdered man, Sidney Steele, was president.

Ralph Hamilton was Steele's nephew—on his mother's side of course—and it was partly because of this relationship that Hamilton had been given the position of chemist and superintendent in the Zolo laboratories.

The company manufactured and distributed a full line of toilet preparations, flavoring extracts and similar products, several of which required alcohol. For this reason, Steele held a permit from the United States Government allowing for the withdrawal each month of large quantities of industrial alcohol.

There had been some nasty rumors afloat to the effect that Steele made more money by selling alcohol to bootleggers than he earned from the sale of the merchandise he manufactured.

Hamilton was a graduate chemical engineer and was rather inclined to be boastful concerning his knowledge of industrial chemistry.

In testing materials, compounds, formulas and in other routine matters connected with the laboratory, he handled his work in very satisfactory shape. But when things went wrong—when something out-of-the-ordinary happened—he seemed to lack resourcefulness, or ingenuity, or whatever it is that distinguishes the successful problem solver.

On a number of such occasions, Steele—in the face of Hamilton's emphatic objections—had engaged Pryor, and in each case the "Master of Mystery" had solved the puzzle quickly and effectively—much to Hamilton's chagrin.

Perhaps a specific case will best illustrate the character of work which Pryor accomplished.

One of the commodities manufactured by the Zolo Chemical Company was a shaving cream. After this

product had been advertised for over two years and had won favor among both dealers and users, a number of serious complaints began to come in. It was found that when a tube of the cream had been left open for a while, the snowy whiteness changed into a dirty, unattractive brownish tint.

Because of this flaw, thousands of customers stopped using the stuff and switched to other brands. Hundreds of dealers, who had previously ordered frequently in large quantities, refused to stock Zolo Shaving Cream at all.

Hamilton tackled the problem, working on it diligently and desperately. At the end of a month he was no closer to the solution than when he started, and the sale of Zolo Shaving Cream had been reduced to the irreducible minimum.

At this point Steele took a hand and despite Hamilton's howls of protestation—called in Pryor for consultation.

It took the Master of Mystery just seventeen minutes to find the source of the mischief.

He first asked Hamilton what he had done. The chemist told him about the scores of changes he had made in the formula in his attempt to find one which would not turn brown. He described the care he had exercised in analyzing some samples of the product which had been prepared before the trouble had appeared, and the pains he had taken to duplicate the formula exactly, but without being able to eliminate the brownish discoloration.

After listening to all this, Pryor asked, "How about the containers? Are the tubes you are using now exactly the same as the ones you used before you began to have trouble?"

"Now that you mention it, the tubes are not the same," Hamilton confessed. "I found I could save some money by ordering tubes from a company in Chicago. Let me see—that was in March—by Jove, it was just after we began using those tubes that the discoloration appeared."

"And isn't it possible that something in the composition of the tubes could react with some ingredient in the shaving cream to form that discoloration?"

"I suppose that might happen. I never thought of testing the tubes."

"Have you any of the old tubes here?"

"I believe we have a few of them."

"Then all you have to do is put some of your regular cream in one of the old tubes and I'll bank on it that there will be no brown discoloration. If you find I am right, all you have to do is to buy your tubes from the company that furnished them to you before, and your problem is solved."

As usual—the Master of Mystery was right. This suggestion saved Zolo Shaving Cream from oblivion.

Steele cheerfully paid the fat fee which Pryor charged him for his few minutes of effort, but what he said to his chemist nephew was another matter.

Naturally Hamilton did not relish being shown up in such a flagrant manner. Instead of feeling grateful to Pryor for helping him out of his difficulties, he showed nothing but resentment toward the talented counsellor.

It was therefore quite apparent that in asking Pryor to investigate the death of his uncle he was concerned not so much in learning the cause of the crime and in apprehending the murderer, as he was with the hope that

for once in his brilliant career the Mastery of Mystery would meet with failure.

CHAPTER III

Interviewing Lieutenant Spangler

IT was characteristic of Pryor that, although he had procrastinated in deciding to handle the Steele murder case, once he had made that decision, he insisted on prompt and speedy action.

"Can you arrange it so that I shall be able to start my investigations immediately?" he asked Hamilton.

"You mean right this minute?"

"Certainly! Why not?"

"I don't see the need of such a terrific rush, but if you want to get going at once, I'll be glad to do all I can to get you off on the right foot. I suppose you will want to visit the scene of the crime first."

"That can wait until later," Pryor told him. "The first thing I'd like to know is what the police and other constituted authorities have already accomplished in the case—if anything."

"I'm afraid they won't be able to help you much. As far as what the police and the detectives have accomplished is concerned, you could put all of it under an amoeba's left eyelid and still have lots of room to spare."

"But an amoeba doesn't have any left eyelid—or any right one either for that matter."

"I know it. Nevertheless, what I said still goes."

"Has any special individual been put in charge of the case? I mean, of course, any particular representative of the police department."

"Sure. The man who is supposed to be in charge is Lieutenant Spangler of the homicide squad. Would you like to have a chat with him?"

"Most assuredly."

"Let me have your phone and I'll see if I can make an appointment with him."

After a brief conversation over the telephone, Hamilton hung up and said to Pryor: "That's what I call luck. Spangler is in his office and he says he'll be glad to see us right now."

"See us?" Pryor questioned. "Does that mean that you intend to come along, too?"

"I'd like to," Hamilton admitted, "you don't mind, do you?"

"Not in the least. In fact I have reason to believe that your presence will be very valuable to us. Naturally you know your uncle's habits pretty well, and you may be able to clear up some of the doubtful points."

"O. K., Old Fruit, let's be on our way."

Fifteen minutes later Pryor and Hamilton were ushered into the office of Lieutenant Spangler.

After introducing Pryor to the detective, Hamilton took considerable pains to apologize:

"I hope you don't think we're butting in, lieutenant. We know, of course, that you and your able assistants are doing all that can be expected under the circumstances, but this case is an unusual one. I'm afraid that only the most unusual methods will be of any assistance in solving it. It looks to me like this is more of a scientific mystery than a matter of criminology. Mr. Pryor is somewhat of a scientist and I believe that his peculiar type of analytical mentality will be immensely valuable."

Lieutenant Spangler seemed to take all this good naturedly.

"You don't need to apologize," he assured his visitors. "I have no objections to any plan that has any chance of digging up the low-down on this case. To tell you the truth, I'll have to admit I'm stumped. In sixteen years of detective work I've never tackled a job that was so haywire as this one. If Mr. Pryor can untangle the mess, more power to him, I say."

"Would you mind giving me your ideas of the case as it now stands?" Pryor asked politely.

"Sure! Glad to give you the dope. Just what did you want to know about it?"

"As much as possible. To begin with, for example, I'd like to know where and how the body was discovered."

"It was found locked in the bedroom of Steele's cabin in Yucca Canyon, about a half-mile north of Hollywood Boulevard. I was there when the door was busted open and I was the first one to go into the room. I had two men with me and I made one of them stand guard at the door until I had searched the room thoroughly and had the room shot from several different angles."

"The room shot?" was Pryor's puzzled interruption. "You don't mean you shot it with a gun?"

At this Spangler gave vent to a loud and raucous peal of laughter. "Did I shoot the room with a gun?" he chuckled. "Cripes, but that's rich! Excuse me, mister, but I can't help laughing at that! But if you must know, I shot it, not with a gun, but with a camera."

"Oh, I see! You took photographs of the room. Of course, I should have known that. How stupid of me."

"Stupid is right!" Hamilton chimed in.

Pryor made no further retort, but there was a twinkle in his eye which made the shrewd detective wonder if he really was as dumb as he seemed.

"Say, you ain't kidding me, are you?" he demanded.

"Why, certainly not, lieutenant. I know better than to try to fool a man whose sagacity is so well known as yours. But please proceed. You took photographs of the room from several angles. That was a very wise thing to do, lieutenant. I wonder if it would be possible for me to see the prints?"

"Sure! I have them right here."

SPANGLER reached into a drawer of his desk and produced an envelope from which he removed six photographs.

Growsome as they were, Pryor examined the pictures eagerly and without betraying the least amount of squeamishness.

"Rather an odd-looking bed," was his first comment.

"That's just what I thought when I saw it," Spangler concurred.

Hamilton then broke into the dialogue with "Uncle always was sort of eccentric—especially in his choice of furniture. That bed with its silky canopy is supposed to be an antique of the Louis XXIII period—if there ever was a Louis the Twenty-third."

"That musta been the guy that said, 'After me the delusion,'" was Spangler's contribution.

Ignoring these two attempts at being funny, Pryor continued to scrutinize the photographs with intense interest.

"Hello!" he cried after a while. "Here's something odd. Wonder what it can be," and he pointed to a tiny spot on one of the prints. It was a white object about

the size and shape of a toy top—round at one end and sharply pointed at the other.

It was lying on the white counterpane. Had it not been for the shadow cast by the photographer's flashlight, it would have been scarcely visible.

"Let's have a look," said Spangler. "I searched the room myself before anyone else touched anything. Went over it with a fine toothed comb. Don't remember seeing anything like that. It must be caused by a scratch or spot on the negative."

"If that's the case, you managed to get a spot of exactly the same shape and proportions on each of the other negatives."

"By cripes, you're right. There was something there all right."

"Perhaps that innocent little object is the weapon or rather the missile which killed Steele," Pryor suggested.

Again Hamilton interposed. "Don't be foolish, Pryor. Can't you see from these pictures that whatever it was that crushed in Uncle's face must have been quite large and heavy?"

"Sure! That's right!" Spangler agreed. "The coroner estimated that it weighed at least thirty pounds."

"But isn't it possible that a similar effect could be produced by a series of swift, hard blows with a smaller object?" Pryor asked.

"Maybe so," replied Spangler. "But the coroner didn't seem to think so. He seemed to be sure that the thing was done by one blow from an object that was hard and heavy and larger than a man's head."

"Then how do you account for the presence of this peculiar looking object on Steele's bed?" Pryor demanded.

"I ain't trying to account for it," said the detective. "If I'd seen the thing itself and found out what it was made of and where it came from—I might be able to account for it. I guess the best thing to do is to get hold of the article itself and give it the once-over. It must be there because the room has been sealed and has been kept under guard every minute since the body was discovered. I may as well go right over there and get it now. Want to come along?"

"Thank you. I'd like very much to accompany you. But before we leave, would you mind answering a few more questions?"

"Glad to. Go ahead and shoot."

"As I understand it, Steele's body was discovered last Sunday afternoon."

"Correct! At four thirty-five to be exact."

"And the alarm was given by one of Steele's servants?"

"By his *only* servant—a Filipino boy by the name of Armando Chilido."

"You answered the call yourself, did you not? You and two other men?"

"That's right!"

"What sort of place is Steele's home? Is it an apartment, bungalow or what?"

"Oh, don't you know that? Steele lived all by himself in a four-room cabin up in Yucca Canyon."

"Yucca Canyon? Isn't that the place that is so notorious for so-called 'love nests'?"

"Yes. But if you're expecting to find a woman in this case, you're all wet. Steele was altogether too old for that sort of thing."

"Really? Does a man who is inclined in that direction ever get too old for that sort of thing?"

"Maybe not. But Steele was never seen with any women and none of the neighbors had ever seen one around his canyon home, so I think we can count the females out of this particular picture."

"Very well, then he must have some other reason for seeking the seclusion of such an out-of-the-way place."

"Uncle always was somewhat of a hermit, you know," Hamilton explained, "and Lieutenant Spangler is quite right about there being no females in this case. Though he was not exactly a misogynist, Uncle never married nor did he ever seek the company of women."

"Did he keep any large sums of money or other valuable property in his home?"

"Decidedly not. There was nothing in the place to tempt a burglar, if that's what you're driving at."

"I'm not driving at anything. Merely gathering the data which must be assembled and analyzed before we can hope to solve the problem. For instance, I am interested in finding out why your Uncle had his place protected with an elaborate burglar alarm."

"Elaborate is right!" Spangler explained. "I've been in a lot of places that were supposed to be burglar proof, but I never saw anything to compare with Steele's bedroom—not even in a bank. It must have cost him a lot of jack to install all those patent locks and bolts and window fasteners, not to mention the electric burglar alarm strung all over the place."

"But what I'm wondering," Pryor rejoined, "is why a man, living all by himself with nothing worth stealing about him, should go to all that trouble and all that expense to protect his premises against interlopers."

"I can explain that," Hamilton volunteered. "Whether he had any justification for it or not, Uncle seemed to think his life was in danger."

"And from what happened, he seemed to have had ample justification for his fears," said Pryor. "Have you any idea as to the identity of the persons of whom your Uncle was afraid?"

"Naturally, I have some ideas on the subject. But if you don't mind, I'd rather not discuss them. If I did, I would be placed in the position of casting a blot on the character of a man who has been like a father to me and who is now dead."

"I can appreciate your feeling and can sympathize with them," said Pryor kindly.

"Thanks, old man!"

Whereupon Spangler remarked, "Perhaps—with all due respect to the honor of Hamilton's departed Uncle—I may be able to give you some dope on the subject. Steele held a very valuable permit from the Federal Government to withdraw large quantities of grain alcohol for industrial purposes. He was supposed to be using all this alcohol in manufacturing his toilet preparations and extracts. About six months ago somebody in the prohibition department got a tip that there was a big leak in Steele's supply of alcohol. Since that time they've been watching him pretty close. They never got the goods on him, but they claim that Steele was connected with one of the worst gangs of bootleggers and hijackers in the city. Hamilton worked for Steele. Maybe he can give us the low-down on this."

If this unexpected turn of affairs embarrassed Hamilton, he did not betray the slightest degree of confusion nor did he seem reluctant to discuss the matter after it had been broached by the detective. In a voice that sounded absolutely sincere he said, "Far be it from me either to accuse or to excuse my uncle. While I prefer

to believe he was innocent of any such crime as has been hinted at, I cannot say positively that such a thing was impossible. However, I can assure you definitely of this much: If there was any bootlegging going on at our plant, it was done without my knowledge. As you both know, I was the chemist. My work was confined to the laboratory. I had absolutely nothing to do with the sales or the financial end of the business and Uncle never took me into his confidence in matters of this sort."

To which Spangler replied, "I've never had any reason to suspect you, Mr. Hamilton." Then turning to the other man he added, "For your information, Mr. Pryor, both the Prohibition officers and the men in my department have investigated Mr. Hamilton's record pretty thoroughly and we have convinced ourselves that if there was anything phoney about the Zolo Company, he wasn't in on it."

"Much obliged, Lieutenant," said Hamilton.

Pryor's comment was, "While your statement is reassuring, it is hardly necessary. You see I've known Mr. Hamilton for several years myself and I think I'm a pretty good judge of character."

"O. K. Now, is there anything else you'd like to know?"

"There are a lot of things I'd like to know. But perhaps the best way to find them out is to visit the scene of the crime. You said something about going over to Steele's place today. Can we go right away?"

"You bet. I'll phone for a car and we'll be on our way pronto."

CHAPTER IV

The House of Puzzles

A FEW minutes after the close of the interview in the detective's office, Pryor, Hamilton and Spangler were seated in the back seat of what a newspaper reporter would have called "A high-powered motor car."

"Step on it, boys," was Spangler's laconic command to the uniformed policeman who occupied the front seat.

The car was hardly well on its way before the officer kicked on the siren. Bouncing and careening, the automobile swung around street cars, dodged between automobiles and bumped over the crossings at breakneck speed.

"Is all this frantic velocity and all this cacophonous excitement really necessary?" In his efforts to make himself heard above the screeching of the siren, Pryor shouted this query at the top of his lungs, right in Spangler's ear.

"Maybe it ain't necessary." (In the middle of Spangler's reply the car hit a bumpy stretch of pavement)—"but—we—do—lots—of—things—that—ain't—necessary—just—to—save—time."

Out Sunset Boulevard to Hollywood Boulevard the police car hurtled. Wherever they went—thanks to the warning scream of the siren—street cars, trucks, automobiles and pedestrians bolted right and left to make way for them.

Within fifteen minutes from the time they left Spangler's office they had dashed through Hollywood's business section. Soon they were winding along the floor of a rustic canyon which seemed utterly incongruous so close to the hustle and bustle of a populous city.

After traversing this highway for a mile or so, the

car swerved sharply into a still narrower road leading into one of the numerous side canyons. With the gravel rattling against the fenders, the car climbed the steep incline, then came to a jolting stop in front of a rustic cabin, which clung precariously to the precipitous wall of the canyon.

On the lofty front porch was a wicker chaise lounge, in which a man in police uniform lay, stretched out at full length. He must have been sleeping soundly, for even the shrieking of the brakes did not arouse him.

It was only when the thud of Spangler's heavy shoes resounded on the wooden stairs that the slumbering policeman jumped suddenly to his feet. In his confusion he reached for his hip and had his pistol half out of the holster, before he became wide awake enough to identify the visitors.

"Hello there, Cunningham," Spangler laughed. "Right on the job I see! Alert and wide awake as usual!"

"Yessur," said Cunningham as he saluted. "It's been pretty quiet here since you left yesterday and I just sat me down for a while to get a bit of rest."

"O.K., Cunningham," was Spangler's good-natured response. "You know Mr. Hamilton, don't you? This is Mr. Pryor, a friend of his—sort of amateur detective. Seems to think he can solve the mystery—discover the murderer—track him to his lair—and all that sort of thing. You know what I mean."

"Yessur."

"O.K. then. Open the door and let Mr. Pryor give the place the once-over."

Pursuant to Spangler's orders, Cunningham broke the seal which had been placed over the keyhole, and opened the door.

The plan of the house was very simple and was characteristic of the ordinary mountain cabin. There were four rooms—a combined living room and dining room, a kitchen, a tiny room for the servant and the large bedroom in which Steele's body had been found.

Naturally, the master's bedroom received the major portion of Pryor's attention.

As they entered, Spangler remarked, "I want to call your attention to the way this door is fastened. Notice that it was not only locked with a key, but it was also bolted from the inside. And that isn't just an ordinary bolt either. It's a patented gadget that's supposed to be burglar proof."

"Also observe that it is made of brass so it couldn't be opened with a magnet," Hamilton chimed in.

Pryor gave the bolt a cursory glance and walked to the windows, which were two in number. It took him but a minute or two to satisfy himself that these openings could not be opened or closed except from within.

"Want to look at the burglar alarm circuit?" Spangler asked.

"That won't be necessary," Pryor replied. "If you've been over it and have come to the conclusion that nobody could have entered or left the room after Mr. Steele locked up for the night, I think we can be safe in concluding that nobody did enter or leave this room between the time when Steele retired and the moment when his body was found."

"Then what do you think killed him?"

"Really, Mr. Spangler, you would hardly expect me to form any opinion at this early stage. Perhaps after I've had time to look around I may be able to suggest a theory at least."

Pryor then made a minute examination of the furnishings of the room, giving particular attention to the bed and the rug on which it rested.

"The white object which showed up in the picture seems to have vanished," was his first comment.

"That's right!" Spangler chimed in. "I almost forgot we came out here to hunt for that darn thing. What do you suppose happened to it?"

Disregarding this question, Pryor continued to move about the room while Hamilton and Spangler watched him with curious interest.

"Find any clues?" Spangler asked after a while.

"Nothing of importance, but perhaps you can help me clear up an important point. Have you any idea how long Steele had been dead at the time your men broke open the door?"

"The coroner estimated that he had been dead at least twenty hours."

"But how could that happen? I believe you said, didn't you, that there was a servant in the house. Surely he would have missed his master and would have given the alarm before such a long period had elapsed."

"Perhaps I can explain that," Hamilton interrupted. "You see, Uncle's death happened on a Saturday night. He was in the habit of sleeping late on Sunday mornings and had given instructions to Armando not to disturb him but to wait until he made his appearance. That's why the Filipino didn't suspect anything until late Sunday afternoon. Then he realized that something must be wrong. He finally summoned nerve enough to knock on uncle's door. When he received no answer he became alarmed and phoned the police."

"That sounds plausible enough," was Pryor's comment. "But there's another question that may have an important bearing on the matter. Mr. Spangler will perhaps be able to answer it."

"O.K., Mr. Pryor. Shoot!" said the detective.

"WHEN you examined this room after you discovered Steele's body, did you notice whether the bed clothes or the carpet under the bed were damp?"

"You mean from blood? There wasn't much blood on the bed. That stain you see on the pillow there was all."

"I wasn't thinking of blood, but rather of dampness caused by water. Did you notice whether the counterpane was wet or dry?"

"I'm sure it was dry."

"Are you quite sure?"

"Yes. If it had been wet, or even slightly damp, I sure would have noticed it."

"And how about the rug?"

"Same there. I went all over the carpet on my hands and knees. If it had been wet even in a single small spot, I certainly would have noticed it."

"Well, that knocks my first theory galley west."

"And would you mind letting us in on your theorizing?" Hamilton asked.

"No, I don't mind. I've been trying to think of some object which would be heavy enough to crush the victim's head but which would disappear without being carried away. The first thing I thought of was ice."

"Ice?" gasped Spangler.

"Yes. Ice. It is altogether possible that a large piece of ice could have fallen on Steele's head or could have been projected at him in some other way. There was time enough for such a piece of ice to have melted.

But in that case it would have formed a lot of water, which would have taken several hours more to dry. Even if you weren't sure whether or not the bed clothes were damp, we still ought to be able to tell whether or not a large piece of ice had melted on the bed. If that had happened, it would have left a stain or at least a rough spot on this starched counterpane. So that eliminates the ice theory."

"Nevertheless, I can see no other possible solution than that this killing was done by means of a missile which afterward disappeared through natural means. Hamilton, you are a chemist. Perhaps you can suggest a substance which is hard enough and heavy enough to crush your uncle's head in and which would disappear without leaving a damp spot or any other trace."

"I'm sure you've got me stumped," Hamilton laughed. "I'd like to help you, but you'll have to ask me an easier riddle than that, if you expect me to provide the answer."

"Nevertheless I'm convinced that our first move toward solving the mystery is to find a substance like that. If there is such a thing, it ought to be possible to learn what it is and to ascertain other important facts about it; and that's exactly what I propose to do!"

"Well, here's hoping that you have plenty of luck," Lieutenant Spangler remarked. "And in the meantime, is there anything else you want to know about this room?"

"I believe I've seen everything that is pertinent to the case," Pryor assured him. "I suppose you want to get back to your office."

"Don't hurry on my account, but, if you're through with your investigation, I suppose we may as well beat it."

Leaving Cunningham to lock and seal the door, the trio went out of the house and approached the police car.

Pryor lagged behind. Spangler and Hamilton were already seated by the time he loitered up to the waiting automobile. He was just about to climb in when he stopped, with one foot on the running board, and began fumbling through his pockets.

"Well, I'll be hornswaggled!" he exclaimed. "I must have left my gloves in that room. Awfully stupid of me. Excuse me a minute and I'll run back and get them."

"Want me to help you hunt for them?" Hamilton yelled after him.

"No, thanks," Pryor replied over one shoulder. "I don't think I'll need any help. If I do, I'll call on Cunningham."

As he dashed into the cabin, Pryor almost collided with Cunningham, who was on his way out. The officer seemed somewhat startled.

"It's O. K., Cunningham," Spangler shouted from the car. "Let Mr. Pryor in again. He lost his gloves."

When Pryor once more stood inside the room of mystery, he did a very astonishing thing. Climbing on top of the bed, he thrust his hand up into a peculiar bunch of ribbons and lace which decorated the canopy just above the pillow. Pryor was over six feet tall and his arms were of a length to match his height; yet he was barely able to reach the freakishly high canopy.

Cunningham watched him with his mouth open. Finally he found his tongue long enough to say, "I don't see how your gloves could get way up there, Mr. Pryor."

"Neither do I," said the Master of Mystery, and with-

out further explanation he hopped down from his perch, lay down on the floor and quickly wormed his way under the bed.

For a while he gazed up at the under side of the springs, unmindful of Cunningham's protests. Then he crawled out from under the bed and began examining the pillows.

"I'm sure your gloves ain't there, Mr. Pryor," Cunningham persisted.

"Perhaps they're under the mattress," Pryor said solemnly, and forthwith proceeded to lift up one end of the mattress and to make a thorough examination of the springs near the head of the bed.

By this time Cunningham had become convinced that Pryor was what he would have called "screwey." He was just about to go to the door and call Spangler, when the advertising man suddenly exclaimed.

"Why here are my gloves! Right here in the top drawer of the dresser. Now how do you suppose they got there?"

"Search me!" said the bewildered Cunningham. "There's sure been a lot of strange goings on in this here room, and I for one ain't going to try to explain none of them."

"I'm much obliged to you, anyway. Sorry to cause you all this trouble."

"Oh, that's O.K. I'm sure glad you found your gloves," said Cunningham, heaving a sigh of relief.

A moment later Pryor was in the automobile with Hamilton and the detective, speeding noisily back to Spangler's office.

Because of the cacophonous screech of the siren, it was almost impossible to carry on an intelligent conversation in the speeding automobile. For this reason Pryor waited until they were back in the detective's office before asking certain pertinent questions.

"Have Steele's books been carefully examined?" was his first query.

"We didn't go over them with a fine tooth comb, if that's what you mean," said Spangler, "but we did check over the guys he's been doing business with."

"Did you ascertain anything interesting?"

"Maybe you might call it that. There were six names on his books that looked queer. We haven't been able to get anything on these people, but at the same time we feel pretty sure that they have been fooling around on the shady side of the Eighteenth Amendment."

"Can you let me have their names and addresses?"

"Sure." Spangler stepped to a filing cabinet, drew forth a folder and opened it on his desk. He then picked up a piece of paper and started to make some notes from the material in the file.

"Would you mind jotting down the kind of business each of these gentlemen is engaged in?" Pryor requested.

"O.K."

When Spangler had finished copying the list, he handed the slip of paper to Pryor and said. "Is there anything else you want to know?"

"No, thank you. Not for the present at least. If I need any more information, I am sure that Mr. Hamilton will accommodate me."

"Of course," Hamilton responded. "You can count on me for any help I am capable of giving you."

"There's one way in which you can assist me right now," Pryor told him.

"What do you want me to do?"

"Can you take me out to your uncle's plant?"

"Certainly. Want to go there right away?"

"If it isn't going to inconvenience you?"

"Not at all. Let's go!"

Pryor shook hands with Spangler, saying, "Goodbye, Lieutenant. Thank you very much for your courtesy."

"Don't mention it."

CHAPTER V

Pryor Experiments

TWENTY minutes later, Hamilton parked his car in front of a one-story brick building in the south-east section of the city.

"Here we are!" he exclaimed. "And now what's the next move in the drama?"

"My principal reason for coming here is that I'd like to do a little experimenting. I hope you don't object to my using the equipment in your laboratory."

"Not at all. Come right in."

"Quiet here, isn't it?"

"It is now all right. You see, we shut down right after Uncle's death and it's hard to say what will happen until after the estate is settled."

"I suppose you were named in the will."

"You bet. I was awarded the enormous sum of one solitary buck. I guess the old man stuck that in there, so nobody could say he had forgotten about me."

"Didn't you and your uncle get along well together?"

"Why, sure. But he treated me just like any other employee, except that he paid me a much higher salary than I would have been able to pull down anywhere else."

"To whom did he leave his property?"

"It's to be divided equally between his son and his two daughters. Bill Steele is on his way out here from Philadelphia now. When he gets here, he'll probably give orders to sell the business. I understand that the Standard Chemical Company had previously made a reasonable offer for it."

"And how will that affect you?"

"It just means that I'll be out of a good job, with scant prospects of getting another one, the way conditions are now."

"According to that, your uncle's death has been a source of ill fortune to you."

"I'll say so. It brought me the illest fortune I've ever had in my life."

"Did you know the terms of your uncle's will before it was read?"

"Sure I did. He made no bones about it. Even had me witness the will the day it was drawn up."

"I don't suppose that was very agreeable to you."

"What do you mean?"

"I mean that you naturally didn't relish the idea of being left out of your uncle's will."

"Oh, that didn't bother me. When a fellow doesn't expect anything, he is not likely to be disappointed. Uncle never felt he was under any obligations to me. I don't see why he should. He hired me because he thought I was useful and he knew he could depend on me. I worked for him because he paid me generously and treated me well."

Leading the way through a large room full of

benches and machinery, Hamilton opened a door near the rear of the building and said, "Here is my lab. It's pretty well equipped. If there is anything special you need in the way of apparatus or reagents, sing out and I'll see if I can dig it up for you."

"Thanks," said Pryor. "My needs to begin with are very simple. All I require are a test tube, a Bunsen burner and some iodine."

"That's easy," the chemist responded. He scratched a match and lit the burner, which stood conveniently on the bench. "You'll find plenty of test tubes in that rack, and here's the iodine," and he handed Pryor a bottle full of a brownish liquid.

"This is tincture of iodine, isn't it?"

"Sure! Isn't that what you asked for?"

"What I meant to ask for was the solid iodine. Haven't you any in crystal form?"

"I think I have a little here. About the only thing I ever use it for is to dissolve in alcohol and put on cuts."

Rummaging around in a cupboard, he finally produced a small amber colored, glass-stoppered bottle.

Pryor removed the cork and shook a few of the flakey, black crystals into one of the test tubes. Then he held the tube over the flame of the Bunsen burner, keeping it moving to distribute the heat and prevent the glass from breaking.

In a minute or two the test tube was full of a purplish or rather violet colored vapor, which gives iodine its name from the Greek word for violet. Some of this vapor curled languidly from the mouth of the receptacle. As a few tiny whiffs of the acrid fumes were blown in their direction, both men began to cough.

"Better put that under the hood if you're going to heat it any more," Hamilton suggested.

"I don't think that will be necessary," said Pryor as he stuffed a tuft of cotton into the mouth of the test tube and placed the container in a rack.

It wasn't long before the purplish vapor in the tube had disappeared, leaving a coating of iodine crystals deposited on the inner surface of the glass.

"Interesting element, iodine, isn't it, Hamilton? Notice how quickly it changes from the solid to the gaseous form and back again from the gas to the solid. I suppose that there is a brief instant in which the element iodine is in the form of a liquid, but it's almost impossible to keep it in liquid form because the freezing point and the boiling point of liquid iodine are almost identical. I wonder if there is any other substance of which that is true. Do you know of any?"

"I don't believe I do. Most liquids formed from melting solids have to be heated to a high temperature before they turn to vapor."

"Are you sure you don't know of any other substance which, like iodine, will change directly from the solid to the gaseous form?"

"I'm afraid not."

"Perhaps iodine isn't a good illustration after all, because it happens to assume the solid form at ordinary temperatures. Suppose, on the other hand, we took a substance which is normally in the form of a gas and by cooling or compressing it, succeeded in changing it first into a liquid and then into a solid. Can't you think of such a substance, which when exposed at ordinary temperatures will change almost instantly from the solid to the gaseous form without apparently going through the liquid stage? I mean which will sublime?"

"If there is such a substance, I never heard of it," Hamilton declared.

"Thanks. That's all I wanted to know."

"And don't you want to perform any more experiments?"

"Not here, thanks. Perhaps, if I could arrange to use someone else's laboratory——" and Pryor left his sentence hanging in midair.

"Is there anything wrong with my lab?"

"Why no. Of course not. I merely was thinking——" and again Pryor broke off in the middle of his discourse.

Without offering any further explanation of his mysterious statements, he reached in his breast pocket and drew forth the list of names which he had obtained from Spangler. Handing it to Hamilton he said, "Know any of these gentlemen?"

"Sure! I know them all."

"I think we can eliminate these two," said Pryor as he crossed off the second and fourth of the six names. "How about the other four? Do they all have chemical laboratories?"

"All except Woods. He runs a small wholesale business. I don't think he ever has any use for a lab."

"Do you suppose there is any way in which I could arrange to do a little experimenting in the laboratories belonging to each of these other three gentlemen?"

"I wouldn't be surprised. I know them well enough so I can take you to all three of them and I'm sure none of them would refuse to let you use his lab for a few minutes."

"That would be excellent! But are you sure it wouldn't put you out to do this?"

"Not at all. Carson's place is only a few blocks from here. I can take you over there right now if you say so."

"If you will, I'll appreciate it immensely."

When they were in the car on the way to Carson's factory, Hamilton remarked, "I don't suppose you have been able to uncover any real evidence yet. You haven't had a chance to accomplish anything toward discovering who murdered my uncle?"

"On the contrary, I feel that I have already accomplished a great deal. But, as for discovering your uncle's murderer, I can't very well do that, until I can be sure he *was* murdered."

"You mean you think there is some doubt about how he met his death?"

"That's the point exactly. My first task is to find out *what* killed him and *how*. After that, it ought to be relatively easy to determine *who* killed him."

"I see," Hamilton responded. "Well, here's Carson's plant. Let's see if he is in."

Carson was in. He was a large, heavily built man with an aggressive jaw and overhanging brows. Despite his forbidding appearance he turned out to be surprisingly friendly and accommodating.

After Hamilton had introduced Pryor and had stated the purpose of the visit Carson said, "Why sure! You're perfectly welcome to use my laboratory, such as it is."

Hamilton excused himself. "I don't suppose you need me here, do you, Pryor? I have a few odds and ends to take care of over at the factory. When you get through just give me a buzz and I'll drive over here for you."

Pryor thanked him. "That's very kind of you, Hamilton, but I don't think you need to bother about me any

more today. When I finish here, I'll just hop into a street car."

CHAPTER VI

An Interesting Demonstration

HAD Hamilton chosen to remain with his friend while he was performing his experiments in Carson's laboratory, he would have been mystified by the actions of the Master of Mystery.

Pryor asked Carson for three things. A Bunsen burner, a test tube and some crystals of iodine.

"I can furnish you with the burner and the test tube, but I'm afraid I haven't any iodine," Carson apologized. "Never have occasion to use iodine in the soft drink business. However, there's a drug store two blocks away from here. If you want me to, I'll send my bookkeeper out for some iodine."

"Thank you, Mr. Carson," said Pryor, as he handed a coin to the other man. "Tell him to get a half dollar's worth, please. That will be plenty."

While they were waiting for the iodine to arrive, Pryor put this query to Carson: "I don't suppose you use any alcohol in your business, do you?"

Carson gave his questioner a startled look. Disarmed by Pryor's innocent expression, he laughed. "Hardly. If I *could* put alcohol in my soda pop, I'd sell plenty of it, but I'd be likely to run afoul of the U. S. Government men. What made you ask that?"

"Oh, nothing in particular. I thought that possibly the ingredients you use for flavoring your beverages might contain alcohol."

"That's true. Some of them do. But even a mosquito couldn't get a kick out of the amount of alcohol contained in any of the products we turn out here."

"I suppose you obtain your flavoring extracts from the Zolo Chemical Company."

"We used to buy a lot of stuff from them. Up to two months ago we were their best customer."

"From that I infer you quit buying from them."

"That's right."

"I don't want to seem inquisitive, but I'd be interested in knowing why you discontinued purchasing your supplies from them."

"Well, if you must know, it was because we weren't satisfied with the quality of their merchandise. We had reason for suspecting that they were trying to palm off inferior products on us."

"I see. And do you suppose Mr. Hamilton knew about this?"

"He ought to. I told him about it in plain enough language."

Just then the clerk returned with the iodine.

Pryor placed a few of the black crystals in a test tube and, taking care to keep the tube moving, gently heated it in the flame of the Bunsen burner.

"A peculiar substance, iodine," he mused aloud. "Notice how it changes almost instantly from the solid to the gaseous state. This action is called sublimation. Also observe that when I set the tube aside to cool, the vapor crystallizes on the side of the glass without seeming to pass through the liquid form."

Carson didn't seem to be especially interested in this demonstration until Pryor put a direct question to him: "Do you know of any other substance that behaves in a similar manner, Mr. Carson?"

"I don't believe I get you," the other man parried.

"What I'd like to know is this: Is there any substance which will change from a solid to a gas without first going through a liquid state?"

"Why sure there is. Solid carbon dioxide will do that."

"Would you mind telling me more about it?"

"Glad to. I use a lot of carbon dioxide in my business, so naturally I have to know something about it. By a combination of compression and cooling, it is possible to convert carbon dioxide gas into a solid. It really amounts to freezing the gas. The substance that results looks like snow or ice. In fact, the common trade name for it is 'dry ice'."

"I suppose the reason for that name is that ice formed from carbon dioxide doesn't become wet when it melts," Pryor suggested.

"That's it exactly. It seems to change directly from the solid to the gaseous form, just like your iodine did. I suppose that there is a brief instant during which the CO₂ is in the liquid state, but this is so fleeting that the substance seems to be dry all the time until the last speck has disappeared."

"Did I understand you to say that you use dry ice in your business?" Pryor asked.

"Hardly. What I said was that I use a lot of carbon dioxide gas. That's about all there is to soda pop, you know—just carbon dioxide gas dissolved in water under pressure with a little flavoring and a little sweetening added."

"Do you make the gas here?"

"Sure."

"Let's see how well I remember my high school chemistry. Carbon dioxide is made by adding sulphuric acid to marble dust, isn't it? Marble dust is almost pure calcium carbonate, as I recall it; and when the acid is added to this calcium carbonate, it forms calcium sulphate and water and releases the carbon dioxide gas."

"That's right. For an amateur you seem to have your chemical ideas pretty well organized. What you have described is the common laboratory method of making carbon dioxide. We used to use the same method commercially, but now we make the gas in a cheaper and more satisfactory way."

"And what way is that?"

"By the fermentation of molasses. Molasses, as you know, contains a large percentage of sugar. When this is allowed to ferment, it is converted into alcohol and carbon dioxide gas is released."

"But while you are making the carbon dioxide gas I should think it would pay you to make the dry ice also."

"No, that's a bit out of our line. We have little use for the dry ice ourselves and there's practically no sale for it among our regular customers."

"Who are the principal users of dry ice?" Pryor wanted to know.

"One of the biggest uses is for the refrigeration of lettuce and other perishable produce, such as are grown in Imperial Valley. With the aid of dry ice, such produce can be shipped for greater distances and will keep fresh longer than when ordinary ice is used."

"And where do the lettuce growers obtain the dry ice they use for this purpose?"

"Most of it is made in Santa Ana. There is a plant there that makes a specialty of manufacturing dry ice."

"Are you familiar with the method used in making dry ice?"

CHAPTER VII

An Unwelcome Visit

"Sure! Sometimes I make a little right here in my laboratory—merely as a sort of experiment, you understand."

"Oh yes, I understand perfectly. Would you mind telling me how you do it?"

"I'll not only tell you but I'll make some for you right now if you want me to."

"I'm sure that's awfully kind of you, Mr. Carson; but I hate to put you to all that trouble."

"No trouble at all. It's quite simple and takes but a few moments. Besides, it is an exceedingly interesting experiment."

Carson led the way to a section of the factory where there were a large number of metal cylinders standing on end.

"You see these cylinders," he indicated. "Each of them is full of carbon dioxide gas. In order to get as much of the gas as possible into one of these containers, we force it in under high pressure and it becomes a liquid like water. Now if I place this chamois bag over the end of the tube and open the valve just a wee bit, it allows some of the gas to escape. In doing this, I relieve the high pressure to which this gas was subjected and permit it to expand at a very rapid rate. As you probably know, any process of expansion takes the heat away from the surrounding space and if this expansion takes place very swiftly, the gas is cooled quickly and considerably—in fact, this cooling is so great that it changes the carbon dioxide gas into snow, such as you see here."

Carson turned the bag upside down and a quantity of fine white powder fell to the floor.

"That," he declaimed dramatically, "is dry ice."

"Looks more like snow to me than any kind of ice," Pryor remarked.

"Well I suppose the word snow is a better name for it in its present form. But it can easily be made into ice by the same method we used back East when we made hard snow balls—in other words—by compressing it. All I have to do is put some of the snow in this mold and apply a lot of pressure to it and it becomes as hard and compact as ice and serves the same practical purposes."

Pryor examined the mold with considerable interest. It was almost cubical in shape.

"You haven't any other molds about the place, have you?" he asked. "You haven't any round or conical molds here in the shape of a boy's top, for example?"

"Why no, of course not. The cubical form is much more convenient. Why should I want a round or conical mold?"

"Oh, I was just wondering, that's all."

"I see."

Pryor asked another question; "Did I understand you to say that the method you have just shown me is the general method in the manufacture of dry ice on a large scale?"

"Not at all. The method used in the factory is quite different in its details, although the principle is the same."

"Well, I guess that's about all I need to know. You've been very kind, Mr. Carson, and I want you to know that I appreciate your courtesy."

"Don't mention it, Mr. Pryor. Chemistry is a hobby of mine and I'm always glad to be of assistance to anyone who is interested in the subject."

IN front of Carson's plant, Pryor boarded a street car. But, instead of traveling toward the center of the city, where he had left his car, he elected to go further east into another part of the city which was zoned for industrial development.

Alighting from the street car, he walked five blocks and entered a building on which was painted this legend: "Doctor Weller's Remedy Company."

After a considerable amount of sparring with the girl at the telephone switchboard, Pryor finally was granted an interview with the head of the firm.

Doctor Weller was portly and pompous. Though his English was polished and exact, it had just enough of a taint of accent to betray the doctor's Teutonic origin.

"I'm sorry to trouble you, Doctor," Pryor began, "but I understand that you are a chemist as well as a physician."

"It is supposed that every physician knows something about chemistry," was Weller's noncommittal response.

"But I've been told that you are unusually well informed on the subject—much more so than the average doctor. I understand that you have a very fine laboratory for chemical research right in this building."

"And if I have such a laboratory—what's that to do with you?" His tone was rude, almost belligerent.

"Only this. I am interested in chemistry myself and I wondered if you would be willing to show me through your laboratory."

"Most absolutely not!" Weller thundered. "Going through my laboratory is something I never allow anyone to do." Then, as if by way of afterthought he added. "Not, you understand, that I have anything to conceal."

"Of course not," Pryor hastened to placate him. "I can quite appreciate your position and I hope you will pardon me for making the request."

"Very well," the doctor grunted. Though this response sounded as if it were given grudgingly, it encouraged Pryor to continue with his questioning:

"I wonder if you will be willing to help me with a little problem I have to solve. If I am imposing on you by taking up your time, I'd be glad to pay you for your advice."

"Since I am at present not a practising physician and since I am also not a consulting chemist, I don't see how I could give you any advice or charge you for doing so. But if you will state your problem quickly, perhaps I can help you with the answer."

"That is very kind of you, Doctor. What I want to find out is this: Do you know of any substance which is normally a gas but which can be solidified? The material I am looking for is a solid about as heavy as ice or water. When exposed to the air at ordinary temperatures, this solid changes into a gas without going through the liquid state. Do you know of anything which answers that description?"

"Most certainly. Any chemist can tell you the answer to that simple problem. The substance you seek is carbonic acid gas. It can be frozen into a solid which looks like ice. This ice when it melts changes almost directly into the gaseous carbonic acid gas."

"Isn't there some other name for this gas?"

"Most certainly. It is the same as carbon dioxide. The chemical formula is CO₂."

CHAPTER VIII

"Do you know how to make the solid CO_2 ?"

"Most certainly I know how to make it."

"Have you made any recently?"

"Is that any of your business?"

"I suppose not. Please pardon me if I seem to be too inquisitive."

"All right."

"I hope you don't mind answering another question."

"Spit it out! What is it you want to know now?"

"Have you ever bought any supplies from the Zolo Chemical Company?"

"Most certainly I have."

"Were they satisfactory in quality?"

"Until about two months ago, yes. After that—no. I don't like to talk bad against a dead man but I have proof that Steele was a cheat."

"Then you've heard all about Steele's death?"

"Most certainly. I read the papers, do I not?"

"I suppose it is a matter of common knowledge. And now there's just one more question I'd like to ask you and that is this: Do you use alcohol in the manufacture of your preparations?"

Weller's face turned red with fury.

"That none of your damned business! Enough of this monkey business is plenty. First you want to go through my laboratory, then you claim to be a chemist and you ask me fool questions that any chemist ought to know the answer to. Next you want to know whom I do business with and now you want to know do I use alcohol. I'm a blunt man and I believe in being frank, and my frank opinion of you is that you are either making fun of me or else you are up to some shenanigans. Now which is it, I ask you?"

Pryor smiled.

"I really cannot criticize you for getting so excited, Doctor. Perhaps I have been too inquisitive. Again I apologize. And since you have been so charmingly blunt with me, I'll be equally blunt with you. My real reason for coming here is that I have been delegated to investigate the murder of Sidney Steele!"

"What? You mean to tell me you are a detective?"

"Not exactly. Just a sort of free lance investigator, that's all."

"So that's it, is it? You are a detective? That's why you came snooping around here." Then, as if the real import of the visit had suddenly dawned on him, Doctor Weller leaped to his feet and grabbing Pryor roughly by the shoulder, exclaimed. "Say, are you trying to make connections between this murder and me? Is it that you are driving at?"

"Of course not. I came to you because I was told that you knew Steele and that you might be able to give me some helpful information about him."

"Then why didn't you say so in the first place, instead of beating around the bushes with your talk about laboratories, frozen carbonic acid gas and alcohol?"

"All those questions have a bearing on the case, which I cannot very well explain to you now. However, whether you wanted to or not, you have been very helpful to me, and I want to thank you very much for your kindness."

"All right. But you most certainly have a funny way to get at what you are looking for, whatever it is."

"Perhaps I may have the privilege of explaining the matter to you more clearly later."

Pryor smiled as he bade the somewhat excitable and suspicious Doctor goodbye.

Another Significant Interview

FIFTEEN minutes later Pryor was talking with the third man on his list—Albert Fellows, president of the Apex Ice Cream Company.

"I am a writer," Pryor fibbed. "I have been given an assignment to prepare an article on refrigeration for the Drug Store Journal. The editor asked me particularly to find out all I could about the use of dry ice in the ice cream business. I've been told that you could give me some interesting information on that subject. There is a possibility that I may be able to work in a little publicity for your firm—perhaps for yourself personally."

Fellows was undersized, both in stature and in girth. His small eyes, narrow ears and long nose gave his countenance a peculiar, rat-like appearance. At the mention of publicity he was all attention.

"That will be very nice," he simpered. "The publicity for the firm, I mean, of course. As far as I personally am concerned, I always keep myself in the background."

Then he reached into a drawer of his desk, drew forth a photograph and went on. "But in case your magazine would like to run a cut of me, here's a print which was made recently."

"Thanks, Mr. Fellows, I'll see if we can arrange to use your portrait," and Pryor blandly appropriated the photograph.

"Now what else can I do for you?"

"I'd like to get some information concerning dry ice. You use it in manufacturing ice cream, do you not?"

"We use dry ice, but not in the manufacturing end of our business. It isn't exactly suitable for that purpose. But for keeping the ice cream from melting while it is being transported, we find dry ice very convenient."

"Do you manufacture dry ice here?"

"No. We can buy it at a moderate cost, so it would hardly pay to manufacture it."

"In what form does it come to you?"

"In cakes weighing about a hundred pounds each."

"These cakes, I presume, are in the form of rectangular parallelopipedrons, are they not?"

"I don't believe I get you."

"Pardon me, parallelopipedron is the mathematical term for a brick-shaped object."

"Well if that's the case the dry ice comes in those pip things all right."

"Can this dry ice be fashioned easily into other shapes, as for instance into a round or conical form?"

"Sure. You can chip it off just like ordinary ice and can shape it any way you want, but I don't see any advantage in that, do you?"

"Perhaps not. I was just wondering, that's all."

Pryor went on with his questioning: "You use a considerable amount of flavoring extract of course?"

"Oh yes."

"Would you mind giving me a rough idea about the quantity of flavoring extract you use in a given month?"

"That all depends on the season. During the summer months we average ten to twelve gallons of flavoring extract per month, but at other times of the year we don't use more than half that amount."

"Well, I guess that's about all I need to bother you about."

"I'm sure it hasn't been any bother, Mr.—Mr.—"

"Pryor."

"Oh yes, of course, Mr. Pryor. I only wish I could be of more help to you than I have been. I'll appreciate it if you'll let me know when the article is published so I can get a copy of it."

"I'll do better than that. I'll send you a copy of the magazine containing my story—that is, of course, providing my article is accepted. I can't always be sure of that you understand."

"I see. I certainly hope it is accepted and I'll look forward to reading it," remarked Fellows as he escorted his visitor to the door.

CHAPTER IX

The Mysterious Electrician

EARLY the following morning, Pryor telephoned to Lieutenant Spangler. When he learned who had called him, the detective said, "Oh, good morning. How is Sherlock Holmes getting on?"

"Quite well, I thank you, but please don't expect me to perform any Holmesian miracles."

"What can I do for you?"

"I believe you said Mr. Steele had a Filipino servant."

"That's right. The boy's name is Armando Chelido."

"Would it be possible for me to ask him a few questions?"

"Sure. That can easily be arranged. When and where do you want to see him?"

"As soon as it can conveniently be negotiated. As far as the place is concerned, I'll leave that to you."

"The kid is working in a restaurant now. It's over on East Third Street, not so very far from my office. May as well have him come here if that's O.K. with you. I don't think he'll be busy between ten and eleven. At any rate, I'll phone him and call you back. Is that O.K.?"

"That will be eminently satisfactory. Thank you very much."

An hour later Pryor was in Spangler's office interviewing Armando Chelido.

"How long were you in Mr. Steele's employ?" was Pryor's first question.

"'Bout free years," the Filipino answered.

"Was Mr. Steele very hospitable?"

"No, sir. Anyhow, I no tink so. I never see him in hospital."

"You don't understand, I mean was he sociable? Did many people come to see him?"

"Oh, no, sir. Very seldom nobody come."

"Did any people come to the house while Mr. Steele was away?"

"Oh no, sir. Only me, sir. Me come there every day."

"But you lived there, didn't you? You slept there every night?"

"Oh yes, sir."

"And how about trade people like the milk man and the iceman? I suppose they came regularly, didn't they?"

"Oh yes, sir."

"And it was always the same man who brought the milk each time, the same man who brought the ice and so forth?"

"Most generally always."

"Can you remember any exceptions?"

"No, sir."

"Your memory is pretty good, is it?"

"Oh, yes, sir. Memory plenty good."

"Very well. See if you can remember anything unusual that happened during the three or four days just before Mr. Steele was killed."

"Not much different happen. Everything go about same every day."

"But wasn't there one day when something different happened? For instance, didn't somebody call at the house—somebody besides the milkman and the ice man and the others who came regularly?"

"Let me tink. Oh, yes, sir. Me believe there came somebody different on the day before Mister Steele die."

"Ah! I thought so!" Pryor cried eagerly. "And who was the different person who called that day?"

"Him lectican."

"I don't understand you."

"He probably means electrician," Spangler interposed. Armando's face brightened. "Yes, sir. That's him. This man he come feex electicity wires."

"Were you expecting him?" Pryor went on.

"Specting? What dat mean, sir?"

"Did Mr. Steele or you order the electrician to come?"

"Me no order him."

"Did Mr. Steele tell you the electrician was coming?"

"Oh, no, sir."

"And after Mr. Steele arrived home that evening, did you tell him about the electrician's visit?"

"Oh, no sir."

"Why didn't you?"

"I no tink it was any his business because he maybe know about it already."

"You mean you thought Mr. Steele had ordered the electrician without telling you anything about it and you assumed, therefore, that he knew all about it?"

"Yes, sir. Anyway, I tink so."

Once more Spangler entered into the conversation. "Say, Armando," he demanded. "Why didn't you tell me about this electrician before?"

"You no ask me, sir."

"I asked you if anything important happened, didn't I?"

"Yes, sir. But I no tink lectican look much important."

Resuming his interrogation of the Filipino, Pryor said, "Now, Armando, see if you can tell us what this electrician looked like. Do you think you would recognize him if you saw him again?"

"Oh, yes, sir. He so funny looking, I know him again every time."

"In what way was he funny looking?"

"He have beeg black weesker."

"Whiskers? Black whiskers!" Turning to the detective, "That ought to simplify matters immensely, Lieutenant. All we need to do is locate all the electricians in the city who have black whiskers and let Armando pick out the one who called at Steele's house. Whoever he is, you can bank on it that he will know something about how Steele was done to death."

"But do you suppose he really was an electrician?" said Spangler.

"The answer to that question should be most illuminating. If we can prove that the stranger who called that day was *not* an electrician, then he must have been a masquerader. And if that was so, he must have had a sinister motive. Do you follow my line of reasoning?"

"Sure! I get you. I'll start my men on that lead today."

"Thank you. That will be very helpful I am sure. But to return to our questioning of Armando: Can you give us a description of the electrician? What did he look like, aside from his black whiskers?"

"I no see inside his weesker."

Pryor laughed. "You don't understand. What I want to know is what kind of a man he was—tall, fat, young, old, bowlegged, brown eyed, and so forth."

"I no can tell what color eyes lectican have."

"Why not?"

"Because him wear black glass."

"And how about his age?"

"Maybe twenty-five—maybe thirty-five year."

"And his build?"

"He not beeg—he not leetle neither."

"You mean he was about medium build?"

"Oh, yes, sir."

"Very well. And when he came to the door did he have anything in his hand?"

"Oh, yes, sir. He have two beeg bundle."

"Bundles? Didn't he carry a chest of tools, a suit case, or something like that?"

"No, sir. Only bundle."

"About how large were these bundles?"

"'Bout so beeg."

"You mean about the size of that typewriter?"

"Oh, yes, sir."

"And were both bundles the same size?"

"Oh, no, sir."

"You mean one was larger than the other?"

"Maybe larger—maybe smaller."

"Did the electrician open these bundles in your presence?"

"No understand."

"Did he open them in front of you so that you could see what was inside?"

"Oh, no, sir."

"Where was he when he opened them?"

"I no sure but I tink he open in Mister Steele bedroom."

"What makes you think that?"

"Because he do work in Mister Steele bedroom."

"And where were you while he was doing his work?"

"Me in kitchen."

"Thank you, Armando. I guess that is all—unless Lieutenant Spangler has any questions to ask you."

"I sure have," the detective exclaimed. "Looks like this electrician business may lead to something. Wish I'd known about it before. See here, Armando, when this electrician came, did he say anything about what kind of work he was going to do?"

"Oh, yes, sir. He say he came to feex electricity light in Mister Steele's bedroom."

"Then there was something wrong with the light, was there?"

"Oh no, sir."

"How do you know there wasn't?"

"Because me drop nickel on floor and turn on electicity light to find him."

"When did this happen?"

"When me make bed—just before lectic man come."

"How many lights were there in the bedroom?"

"Just two."

"Did they turn on separately or did they work together by a switch?"

"Me snap on switch by door—both light go on."

"Are you absolutely sure that both the lights went on?"

"Oh yes, sir. Me plenty sure of dose."

"And after the electrician had gone, did you notice any changes in the room? For instance any light being added, or had the sockets been changed from one place to another or anything like that?"

"No sir. I see no change anyway."

"You're sure of that are you?"

"Oh, yes, sir. Me plenty sure."

"O.K. I guess that's all."

When the Filipino had gone, Pryor remarked, "Oh, by the way, Lieutenant Spangler, I wonder if it would be possible for me to take a peek at the Zolo Company's books?"

"No doubt it can be arranged. What's the matter? Didn't I give you enough suspects to work on?"

"Oh it isn't that so much. But when I assume the responsibility for accomplishing a certain task, I always make it a rule to check everything that is pertinent—in order to make sure that nothing significant is overlooked, you understand?"

"I get you. If it will be of any help to you, I can have the books brought here. You can borrow them long enough to take them to your office and give them the once-over, if you want to."

"That would be splendid. But you don't mind if I go over them more than once, do you?"

"What's that? Oh, I get you. When I said 'once-over' it was just an expression, you understand. You can go through them a million times for all I care."

"Thank you very much. And now I'll be on my way." With his hand on the doorknob, Pryor turned and remarked, "Perhaps it will interest you to know that I've ascertained the character of the weapon with which Mr. Steele was killed."

"What's that you say?"

"I've found out what kind of weapon killed Steele."

"The devil you have! And would you mind putting me wise?"

"I'd be delighted. It was done with CO₂."

"See oh too?" Spangler exclaimed. "What the devil—"

But before he could complete his sentence, the Master of Mystery had closed the door behind him, leaving the detective scratching his head in bewildered amazement.

CHAPTER X

A Murderous Package

TWO days later Pryor again found himself in Lieutenant Spangler's office. The detective spoke first.

"We've been working like the dickens ever since we picked up the trail again on the Steele case. What that Filipino spilled about the electrician looked like a hot tip, but it hasn't got us anywhere yet."

"Really?" Pryor responded. "Then you followed up the tip, did you?"

"Sure I did. Put four of my best men on it. We've checked every electrician in Los Angeles, Glendale, Burbank, Pasadena, Beverly Hills and the Beach cities. There isn't a man in the whole bunch of them who sports long black whiskers and wears dark glasses."

"You are sure of that?"

"Positive. What do you think of it now?"

"I think you have accomplished an excellent piece of work. Permit me to compliment you and to thank you."

"What for? Didn't I tell you that our work didn't get us anywhere?"

"Perhaps that is a matter of opinion. To me it looks as if you have simplified matters considerably and have materially hastened the solution of our little mystery."

"I'm glad you think so, though I don't know yet what you're driving at. Would you mind putting me wise?"

"Certainly. But before we come to that, I'd like to get your opinion concerning this," and Pryor pushed across the desk a package about the size of a shoe box. "I received it this morning. You will notice that it was mailed yesterday in Oakland."

"It don't look like it had been opened," said Spangler.

"No, I thought it best not to open it until I'd found out what it contained."

The detective looked at him quizzically. "How do you expect to find out what's in it until you open the package?" he wanted to know.

"That's simple enough," was the reply. "On my way over here I stopped at the Physicians' Building on Sixth street and had an X-Ray photograph taken of the package. They developed it while I waited. Here's the negative. Careful—it's still damp."

Spangler held the film up to the light.

"Cripes!" he exclaimed. "It looks like there's a gun inside the box."

"Exactly. The box apparently is made of wood. See? You can easily distinguish the hinges. Observe also that the gun points in such a direction that the person opening the box in the regular way would get the bullet right in his abdomen. If you look close, you can see a wire connecting the lid of the box with the trigger of the gun."

"Sure! I see it! Say, Mr. Pryor, you sure were lucky!"

"Did you say lucky?"

"Well, maybe I ought to say you're foxy instead of lucky. It sure looks as if somebody was laying for you. Have you any idea who it is?"

"Most assuredly. I know precisely to whom I am indebted for this little—shall I say gift—or perhaps it would be more appropriate to call it a token of confidence."

"I'm afraid I don't get you," was the detective's puzzled response. "What's this got to do with confidence?"

"To me it indicates that the man we are looking for knows I am hot on his trail. Consequently I feel all the more confident that I am on the right track."

"Is that so? Who do you think did it?"

"I'd rather not say just yet. While I feel mighty certain that I know the identity of the murderer, I also want to make sure that I have ample evidence to convict him, no matter how clever he and his lawyer may be. I need a little more time to collect this evidence."

"But suppose, in the meantime, this guy croaks you. Just because he missed the first time is no reason why he'll stop trying to get you. And if he doesn't do that, he may decide to beat it. Better tell me his name so I can at least have him watched. And another thing—better let me furnish you with a bodyguard in case this guy tries to plug you."

"Thanks, Lieutenant, for your solicitude; but I'm sure there will be no need for a bodyguard. As you know, every criminal tends to favor certain individual

methods, and our friend the murderer seems to run to traps. So all I need to do is to look out for traps, and that ought not to be so hard. Incidentally, I've just about decided to turn the tables and set a little trap of my own. And please forgive me for not telling you the name of the culprit. While I have every confidence in your judgment and discretion, there are reasons why I don't think it advisable to divulge his name even to you until after I've completed a certain experiment. I can assure you, however, that there is very little likelihood either that I shall be killed or that the murderer will try to run away."

While Pryor was talking, the phone rang. Spangler waited until he had finished the sentence, then lifted the receiver.

"Spangler talking." . . . "Oh, hello, Mr. Hamilton. Waddiyaknow?" . . . "Say, we're coming along swell. Mr. Pryor's here in the office right now. Want to talk to him?" . . . "Just a minute." Holding his hand over the mouthpiece, Spangler said, "It's Hamilton. Wants to know how we are coming with the case. Will you talk to him?"

"Most assuredly." Taking the phone, he said, "Hello, there, Hamilton. This is Pryor." . . . "Considering the short time we've been working on the case, I feel that we've made very satisfactory progress." . . . "Oh, yes, indeed. You'd better get ready to pay that wager." . . . "If you don't think we're getting warm, listen to this. I just received a mysterious package. It contained a loaded gun rigged up so that it would pop me in the tummy when I opened the package." . . . "No, of course I didn't open it." . . . "Oh, that's another one of those dark and dirty mysteries. I'll tell you later how I found out what was inside the package." . . . "Thanks, old man. I certainly appreciate your thoughtfulness." . . . "Suppose you phone me tomorrow. I hope to have some interesting information for you." . . . "Right here, in Spangler's office. About eleven A. M. Just a minute. Yes, Lieutenant Spangler says that eleven tomorrow morning will be O. K. You'll be sure to phone, won't you?" . . . "Thanks! Goodbye."

As he hung up the receiver, Pryor remarked, "By the way, Lieutenant, I'd like, if possible, to stage a little party tomorrow afternoon out at Steele's cabin. If you can spare the time, I think you ought to be present. Urgent invitations are also extended to four other persons. Here are their names. Do you think they could be persuaded to attend?"

Spangler glanced at the list which Pryor had handed him. It read as follows:

"David Carson
Doctor Hermann Weller
Albert Fellows
Armando Chelido."

"Hm!" muttered the detective. "So it's one of those guys, is it? And you want to know if they can be persuaded to come to your party? You're darn right they can be persuaded. Yours truly is the best little persuader you ever knew. If you don't mind, I'll start my persuading right now." He pressed a buzzer and a girl entered. He handed her the list, with the command, "Get these parties on the phone for me."

"And now for the package," Pryor went on. "It ought to contain several valuable clues. If you don't mind I'll leave it with you. Now that you know just how the gun points, it will be easy to open the box in such a way that it can't do any harm. Perhaps the gun,

the box and the rest of the paraphernalia will be sources of interesting information."

"But, surely, Mr. Pryor, you will want to go over these clues yourself, won't you?"

"That will hardly be necessary. I don't know of any persons who are better fitted for the job than you and your competent assistants. I've already learned all I need to know from *outside* of the parcel. But if the inside reveals anything pertinent, we can talk it over tomorrow morning. Is that satisfactory?"

"Sure! Excuse me while I answer the phone."

A MOMENT later Spangler uttered an exclamation. "Cripes! What do you know about that? My secretary has the Apex Ice Cream Company on the wire. They say Fellows is in 'Frisco. Been there since Wednesday. Expected back on the Padre tomorrow morning."

"Fine!" Pryor said. "That means he'll be in Los Angeles in plenty of time to attend my little party."

"Maybe so," the detective yelled. "But don't you realize what this means? Fellows is in 'Frisco. Been there for two days. And the package was mailed from Oakland, just across the Bay."

"From which, I presume, you infer that Fellows is the man who tried to murder me."

"It sure looks like that to me. And if he was the bird that sent you the package, it's a dead cinch that he's also the guy that murdered Steele."

"That remains to be seen. If Fellows is the culprit, the box and its contents ought to yield additional evidence against him, and I believe it will be worth while for you and your assistants to investigate that angle of the case with your usual thoroughness. Do you think you will be able to do this by eleven o'clock tomorrow morning?"

"Sure! We ought to be able to dope it out by that time."

"That will be capital. Thank you very much. In the meantime I have a bit of additional investigating to do on my own hook, so I'll bid you goodbye."

"Just a minute, Mr. Pryor. Remember, when you were here the other day you told me you had discovered the weapon that killed Steele?"

"Oh, yes."

"And when I asked you what it was you said, 'Gee! Oh, Too'—or something like that."

"Not *Gee* O₂ but CO₂."

"What's the difference? To me the one sounds just about as crazy as the other."

"I take it then that you are not familiar with chemical formulas."

"Not so's you'd notice it."

"Then permit me to elucidate. CO₂ is the chemical symbol for carbon dioxide gas."

"And what in the dickens has carbon dioxide gas got to do with Steele's getting croaked? I guess you must think I'm dumb if you are going to try to make me believe that he was killed by gas when I found him myself with his head all bashed in."

"Excuse me, Mr. Spangler. I can assure you that I have no intention of ridiculing you or of trying to stretch your credulity. I'm afraid my explanation has not been very clear. You see the CO₂ which killed Steele was not a gas at all but was in the form of a solid. Do you comprehend my meaning?"

"Sure! It's just as plain as Einstein's dope about

relativity. What you are trying to tell me is that carbon dioxide gas is not a gas at all but is solid—and I suppose you think my head is made of the same material."

"On the contrary, Mr. Spangler. I hope you will believe me when I tell you with the utmost sincerity that I have the highest regard for your ability and your intelligence."

"Then why in hell do you talk such nonsense?"

"No doubt it does sound like nonsense. I'm afraid I've made an awful mess of my attempt to explain it to you. Please let me try again. Carbon dioxide is a gas at ordinary temperatures; but by cooling it, this gas can be frozen and thus converted into a solid. Perhaps the best way to make this clear is to use a familiar analogy. Steam as you know is a gas. If this gas is cooled it is first converted into a liquid—which we call water—and if this substance is cooled still further, it is changed to the solid form and we call it ice. In other words, ice is really frozen steam."

"When carbon dioxide is cooled sufficiently, it also forms ice but with this important difference. It first becomes liquid, and it is converted almost immediately from the liquid to the solid state. When this carbon dioxide ice melts, it seemingly doesn't liquefy first, but changes at once into carbon dioxide gas. In other words, the ice doesn't really melt—it evaporates. For this reason, it is commonly known as 'dry ice.' This would account for the fact that you didn't find any evidence of moisture on Steele's bed, which would have been the case if ordinary ice had been used instead of thin dry ice. Does this make it any clearer?"

"I'm beginning to see a little light. But I still don't understand how this dry ice could have killed Steele."

"Then permit me to expound my hypothesis. You observed, of course, that Steele's bed was of a very unusual construction, the most peculiar feature being a rather high canopy. If you had examined the portion of this canopy directly above the head of the bed, you would have noticed a very ingenious device. It was sort of a catapult arrangement. Part of the mechanism consists of a very powerful spring which could be compressed and held in place by a trigger arrangement. To this is fastened a thin wire, which runs down to a tripping device located just under the pillow."

"Do you mean to say that all that junk was on Steele's bed and that I didn't notice it?"

"That's no reflection on you, Lieutenant. The junk, as you call it, is skillfully concealed by the draperies. It is hardly the sort of thing that you would expect to find or would think of looking for. I discovered it almost by accident."

"My problem was simple enough. All I had to do was find a substance heavy enough to fracture Steele's skull and of such a nature that it would disappear without leaving any moisture or other trace behind it. The only substance I know of which fits these requirements is dry ice."

"The next step was to discover how this heavy object was projected toward Mr. Steele's head with sufficient force to cause his death. So I looked for the trap and found it."

"I'm beginning to see what you're driving at, but you've still got me guessing," Spangler admitted.

"Then suppose we go back to the beginning and attempt to reconstruct the murder as it probably happened. Somebody decided to kill Steele. There is every reason to believe that this person was intelligent and smart and

well educated. He must have known something about science. He must have had an inventive turn of mind.

Because he was smart he planned to commit one of these so-called 'perfect crimes'."

Spangler interrupted with, "Looks like he wasn't quite smart enough to be wise to the fact that there's no such thing as a perfect crime."

"Precisely. As is frequently the case, the very smartness of his plan led to his discovery."

"Excuse me for butting in. What's next?"

"Next, our criminal concocted a devilish scheme. With fiendish ingenuity he devised a trap such as I have described. He probably made it with his own hands.

"He also procured a quantity of dry ice. That was the easiest part of the whole plan. He might have made the dry ice himself or he might have procured it from some commercial source—that detail really doesn't matter. At any rate, he obtained possession of a lump of dry ice weighing say thirty or forty pounds. This was molded or carved out into a shape like a huge toy top—rounded at one end and pointed at the other.

"With this mechanism and his lump of dry ice concealed in two packages, the murderer obtained access to Steele's home and installed the trap in the bed of his victim."

"That must have been the electrician that Chelido told us about."

"Perhaps. Whoever it was that placed the trap there, he left it all set and ready for its victim.

"When Steele retired for the night, he carefully locked all the doors and windows and set the burglar alarm. Then he went to bed. The instant his head touched the pillow, the trap was sprung. With the combined force of gravity, augmented by the power of the released spring, the heavy missile was hurled straight down upon Steele's upturned face. It must have snuffed out his life so quickly that he didn't even have time to let out a yell.

"Had Steele's death been discovered at once, the lump of frozen carbon dioxide would also have been found; but you will recall that the murder was planned to take place on a Saturday night and that it was not until Sunday afternoon that you finally were brought to the scene and forced open the door. In the meantime the dry ice had melted—or rather evaporated, leaving no trace, except one tiny remnant of the substance which had not quite disappeared. It was too small to be noticed by you and your assistants, but it did not escape the all-seeing eye of the camera."

For a moment or two Spangler sat silently wrinking his brow as if he were making a strenuous attempt to think hard. Then he spoke. "What you've been telling me sounds almost like a bedtime story—and yet it might have happened all right. But, suppose you've got it straight. Suppose you have hit on the way the killing was done. Even that doesn't help us very much unless we also find out who did it. How about this carbon dioxide stuff? Do all these guys you have been suspecting know about it?"

"They all do. Any one of them could easily make it himself or could procure some of it without exciting suspicion."

"That makes it tough, don't it?"

"On the contrary. To me it simplified matters immensely."

"You mean you already know who did it?"

"Precisely. From what you already know about the case, can't you figure out who the culprit must be?"

"You mean Fellows?"

"I'd rather not answer that just yet. I'll tell you this much, however; I knew positively who the murderer was the first day I took the case. The only thing I lacked was sufficient evidence to convince a jury. That I expect to obtain tomorrow afternoon."

As Pryor departed, Spangler scratched his head and muttered, "Well I'll be damned!"

CHAPTER XI

Conflicting Clues

THE following morning at ten forty-five, Pryor again presented himself at the office of Lieutenant Spangler. The detective greeted him excitedly:

"Say, Mr. Pryor, I'm glad you came. The more I get into this thing the more haywire the whole mess seems to be."

"Have you ascertained anything significant?" Pryor inquired politely.

"Believe me, brother, I've ascertained plenty. But whether or not it's significant is something else again."

"I take it then that the package I left here yesterday yielded some additional clues."

"I'll say it did."

Just then Spangler's stenographer opened the door quietly and said, "Excuse me, Lieutenant Spangler, but Mr. Hamilton just came in! Said he had an appointment with Mr. Pryor. I hardly knew whether to ask him to wait or to show him in."

"That's up to Mr. Pryor," said Spangler.

"Show him in, by all means," Pryor responded. "I'm sure Mr. Hamilton will be interested in the evidence that we have unearthed."

As Hamilton was ushered into the Lieutenant's private office, he greeted Spangler and Pryor very effusively.

"Hope I'm not intruding," he apologized. "You asked me to phone you about eleven. I happened to be in this neighborhood, so instead of phoning, I came here in person."

"Glad you did," said Pryor cordially. "We were just discussing that mysterious package I told you about yesterday."

"You mean the package you received in the mail?"

"Yes. Lieutenant Spangler has been over it very carefully. He was just going to tell me what he discovered."

Being thus accorded the floor, Spangler began: "In the first place, the gun we found inside the package is a Luger—the kind that was carried by German officers during the war."

"What war?" was Hamilton's attempt at being facetious.

Ignoring this inane remark, Spangler went on, "When I found out that Fellows had been in 'Frisco, I thought he must have been the guy who mailed the package. But the German pistol—that made it look like Doctor Weller. I understand that he used to be a captain in the German army."

"Were there any other clues that seemed to point to Weller?" Pryor asked.

"No. But there was one that pointed to your other suspect."

"You mean Carson?"

"Sure. On the back of the wrapping paper we found

a rough place where something had been printed by hand and afterward erased. We photographed it by ultra violet light. Here's an enlarged print of it. See, you can make out the name quite distinctly: 'Carson Bottling Works.' Now, wouldn't that pull your cork?"

Hamilton laughed. "Let me get this straight. The package came from Oakland. You found out that Fellows was in San Francisco at the time the package was mailed. Hence Fellows must have mailed it. BUT! On opening the package, what do you discover? A Luger pistol—just like the ones used by German officers during the war. Doctor Weller is German. He was formerly an officer. It is quite likely that he would have had such a gun in his possession. Therefore, Doctor Weller must be the culprit.

"But hold! When the paper in which the package was wrapped is examined, what was discovered? A name had been erased, indicating that the paper had originally been used to wrap a parcel addressed to the Carson Bottling Works. From which we naturally infer that the deed was perpetrated by Carson."

"That's what makes the whole mess look like ticker tape," said the detective. "All three of them couldn't have done it."

"Why not?" Hamilton challenged. "Suppose we assume that all three of those men had good reasons for wanting Uncle put out of the way? Suppose they got together. Suppose they conspired to commit the murder and when they found out that they were suspected, suppose they got together again and planned to do away with the man who was hot on their trail? Suppose Weller furnished the gun, Carson arranged the package and wrapped it, and Fellows took it with him to San Francisco and mailed it."

Spangler brought his huge fist down on the desk with a resounding thud. "By God! Maybe you're right. Maybe all three of them were in on it. What do you think about it, Mr. Pryor?"

The Master of Mystery smiled. "It's an interesting conjecture, but it doesn't sound very plausible to me." Then, turning to the detective he remarked, "Was that all you found out from the package, Lieutenant?"

"All that seemed to be important."

"Did you ascertain if either Weller or Carson had been outside of Los Angeles between the seventeenth and the nineteenth?"

"Yes. I thought of that, too. Both Weller and Carson have iron-clad alibis. That don't necessarily prove, though, that the package wasn't put in the mail by either Weller or Carson."

"I don't quite comprehend," Pryor said.

"What I had in mind was this. Whoever fixed up that package might have put it inside another package and sent it to a friend in Oakland, asking him to mail it. The other party wouldn't necessarily know what was in the package. Do you get me?"

"Oh, yes. Now I do comprehend. And that opens up another interesting speculation. But before we go any further with this line of reasoning, I want to make sure that our plans for this afternoon will be properly consummated. I assume that all the players in our little drama will be present."

"Don't worry about that. Everything has been taken care of," Spangler assured him.

Hamilton interposed: "To me, you two are talking riddles. I'm consumed with curiosity. Would you mind letting me in on the mystery?"

"Certainly," Pryor condescended. "We are planning to make some experiments this afternoon, which I hope will be both interesting and resultful. In fact I have reason to believe that we shall be able to locate definitely the person who murdered your uncle and to prove his guilt conclusively."

"Interesting if true," was Hamilton's trite response. "Is this to be a private affair, or are visitors allowed?"

"Of course it's private. Why do you ask that?"

"I was wondering if you had any objections to my coming to the party."

"That's rather an unusual request."

"I realize that. But I thought that, on account of my being in the family, so to speak—on account of it being my uncle that was murdered, you might be willing to let me come in at the finish. Then there's another thing. Don't forget that we have a bet up on this case."

"That's right," Pryor said. "I'd almost forgotten about our little wager. I may as well tell you right now that you've already lost the bet."

"Oh, yeah? Well, before you get me to pay, you'll have to convince me. Come, now, Pryor, be a sport and let me in on these experiments of yours."

Pryor continued to hold off. "What do you think about it, Lieutenant?" he said, addressing Spangler.

"Makes no difference to me," the detective muttered.

"Well, I'll have to consider the matter a while, but I'll tell you what you can do, Hamilton. Be at your uncle's cabin this afternoon at two. I'll let you know then whether or not it will be advisable for you to witness our experiments. But whatever happens, I promise you that you will be among the first to learn the identity of the murderer."

Hamilton thanked him warmly. "I sure appreciate that, Pryor," he affirmed.

CHAPTER XII

A Strange Experiment

AT about one-thirty o'clock on that eventful day, Pryor arrived at Steele's cabin. He found Cunningham still in charge. Gaining admittance with the aid of a note from Spangler, which he had obtained that morning, Pryor entered the room in which Steele's body had been found.

He had with him two bundles. They were identical in size, each being about as large as a hat box. Pryor unwrapped one of them and removed a heavy white object. It was somewhat larger than a man's head and was shaped like a child's top—rounded at one end and pointed at the other.

Climbing up on the bed, Pryor inserted the mysterious object into a receptacle which he located among the draperies of the high canopy. Then he took a broom, which he had brought with him from the kitchen, and pressed against the pillow. After several unsuccessful trials, he heard a sharp click and the top-shaped object suddenly crashed down upon the broom. So terrific was the force of the blow, that the metal sheath which held the broom together was mashed flat. It was easy to see that if a man's head had been in the place of the broom, it would have been crushed like a walnut under the blow of a hammer.

With a satisfied smile on his face, Pryor packed the missile up again. Lifting up the end of the mattress, he disconnected from the tripping device the wire lead-

ing to the catapult. Then he unwrapped the second parcel, disclosing another top-shaped object which looked exactly like the one he had just tried out. Exercising a great deal more care than he had the first time, Pryor set the trap again, this time using the duplicate projectile.

Having completed this task, he straightened out the pillow and the covers at the head of the bed. Then he went out to the porch and joined Cunningham.

"I suppose you have a pair of handcuffs with you," he said to the officer.

"Sure!" Cunningham exclaimed, tapping his hip. "I always have the bracelets with me."

"Keep them handy. You'll need them this afternoon."

"You mean you think we are going to arrest somebody?"

"Precisely. I not only think so, I'm sure of it."

"Well, if you're so sure of it, maybe you can tell me who the prisoner is to be."

"Certainly. You will be asked to arrest the murderer of Mr. Steele."

"Glory be! So he really was murdered, was he?"

Just then the distant whine of a siren was wafted to their ears.

"Listen!" Cunningham whispered, "that sounds like the Lieutenant."

His assumption was verified a few minutes later when Spangler's large car came clattering up the dirt road. In addition to the officer, who was driving, there were five men in the automobile. They were Spangler, Weller, Carson, Fellows, and Armando, the Filipino boy.

They all got out and Spangler led them to the cabin.

"I corralled them all at my office and brought them out here together," he explained to Pryor. "Thought it would be more convenient to handle it that way."

"That was very kind of you, Lieutenant. I hope you didn't encounter any difficulties."

"Nothing to speak of. Only one of these guys gave us any trouble. You can have four guesses to decide who it was," said Spangler with a grin.

Pryor glanced anxiously at the new arrivals. They all looked normal, with the exception of Doctor Weller, whose face was distorted with rage. His hat was dented and his necktie was awry. Taking all in all, he presented a somewhat ruffled appearance.

"You've guessed it, of course," Spangler continued. "Weller thought he had decided he wasn't going to come out here this P. M. We had to do a little persuading."

Pryor started to tell Doctor Weller that he was very sorry, but the German interrupted him.

"I protest against this outrage," he stormed. "I'll hire a lawyer! I'll sue you! You have no right to force me to come here against my will!"

Pryor tried his best to placate him. "This is indeed deplorable, Doctor. I can assure you that I had no thought of forcing anybody to come here against his will. Perhaps our purpose has not been made clear to you. We are trying to find out who murdered Mr. Steele. In a case like this, we feel we have a right to expect any one who can help us and who is interested in seeing justice done to co-operate with us. Surely you have no reason for wishing to obstruct our investigation, have you, Doctor?"

"Most certainly not!"

"Then don't you think it will be advisable for you to help us?"

"If you need help, why don't you call in a detective

that knows his business?" was Weller's insulting response. "Why do you try to force me to help you?"

"The reason will be made clear to you presently. It will take just a few moments. And now, since we are all here, we may as well proceed." Turning to the Filipino he added, "Armando, would you mind waiting out here on the porch? I won't need you until a little later."

Ushering the rest of the men into Steele's bedroom, Pryor began: "Some of you gentlemen already know that this is the room in which Mr. Steele's body was found." Then he went on with a long winded explanation of the peculiar circumstances surrounding Steele's death.

He was rudely interrupted by Weller. "Aren't you ever going to arrive at where you are heading for? It is known to all of us what you have just told us. I have work to be done today. Can't we get this over with?"

"I'm sorry if I seem to be too voluble," Pryor apologized. "My sole purpose is to make everything clear. Some of these other gentlemen may not be as familiar with the case as you seem to be."

He was standing near a window from which the road leading down the canyon could be plainly seen. As he talked, he glanced through the window several times. Finally a blue roadster, which he recognized as Hamilton's, hove into sight. Turning to Cunningham, Pryor said, "I'm expecting Mr. Hamilton. When he arrives, tell him to come right in here."

"O. K.," said the officer as he left the room.

A moment later he returned, accompanied by Hamilton.

"HELLO, everybody," was the chemist's radioistic greeting. "Sorry I'm late." He shook hands with Pryor, and said, "From what Cunningham just told me, I infer that you have decided to let me in on your experiments. Have I missed much of the show?"

"Nothing of consequence. I was merely giving these gentlemen a preliminary exposition of the case. You know all about that already. I was just going to proceed with the experiment. Doctor Weller seems to be impatient, so we'll use him first. If you don't mind, Doctor, I'd like you to lie down on the bed."

"Lie on the bed?" Weller objected. "What's the idea of this monkey business?"

"I have reason to believe it will help elucidate our problem. You are going to co-operate, are you not?"

"Oh, well, I suppose I'll have to humor you," and the German grudgingly stretched himself out on the bed.

"Would you mind moving over just a little bit, so your head will be right under the peak of the canopy? There, that's about right. Now, place your head on the pillow and look up."

Weller followed instructions.

"Do you notice anything unusual?"

"Nothing but a lot of fancy decorations. Now, what else do you want me to do?"

"That will be all. Thank you very much."

"What! You drag me out from my business and all you want from me is to lie on a bed and look up?"

"Yes, Doctor. I won't need you any more."

"You mean I can go now?"

"As far as I am concerned you may. But, since it's a long walk to Hollywood Boulevard, I suggest that you wait a few minutes more so that you can ride back in one of the automobiles."

"Very well."

"And now," Pryor went on. "I think I'll take you next, Mr. Fellows, if you don't mind."

"What do you want *me* to do?"

"Just what you saw Doctor Weller do. Lie down on the bed, please."

"Looks to me like a lot of nonsense," Fellows grumbled. Nevertheless he lay on the bed without any further urging.

When he had his subject in the desired position, Pryor said to him. "Now look up and tell me if you see anything unusual."

"Nothing unusual that I can see. Just a bunch of lace and cloth."

"Thank you. That will be all."

Fellows got up, shrugged his shoulders and muttered something about "damn foolishness."

Then Pryor turned to the third man. "It's your turn now, Mr. Carson. Kindly lie down on the bed, with your head right in the center of the pillow and look up. That's right. Now do you notice anything peculiar?"

"I don't know whether to call it peculiar or not," Carson answered. "I can see the cloth and lace that Fellows mentioned and that's about all—except—"

"Except what?" Pryor exclaimed eagerly.

"Except a funny looking object up there. It looks like it's made of metal painted white."

"Thank you. That will be all."

For several minutes there was an ominous hush. It was broken by Hamilton. "Well, Mr. Master of Mystery, it looks as if your experiment is a fizzle."

"On the contrary, it was an outstanding success. It has definitely verified what I already knew to be true."

"And is this the end of the piece?"

"Yes, except for one thing. It is important that I should know exactly what position Mr. Steele's body was in at the time it was discovered. Lieutenant Spangler, I believe you know more about that than anybody. Would you mind showing me?"

"You mean you want me to lie on the bed, too?"

"If you don't mind."

Spangler started to stretch himself out on the bed, then suddenly sat up and said, "Say, Pryor. You don't think I committed this murder, do you?"

This was too much for Pryor. He roared with laughter and the rest of the party, with the exception of Doctor Weller, joined in.

"I guess I don't need to answer that question," Pryor said when he could stop laughing long enough to talk. "All I want to find out is how Mr. Steele was lying when you found him."

"He was on his back," Spangler explained, "Like this." He tried to stretch himself out to his full length but his heels came in contact with the footboard, making it necessary for him to keep his knees bent.

"I'm afraid you are too big, Lieutenant. What we need is someone who is about the same size as Steele. He wasn't a very large man, was he?"

Hamilton interposed. "Uncle was just about my size."

"Is that a fact? Then perhaps we can use you as a model. Suppose *you* lie down on the bed in about the same position that Lieutenant Spangler tried to assume."

Hamilton sat on the edge of the bed and started to place his head on the pillow.

"Just a minute," said Pryor. "I want to make a little connection." He removed the pillow and lifted the end

of the mattress, exposing the tripping device beneath it.

Without making any attempt to conceal his actions from Hamilton, he attached the wire connecting the trigger to the catapult. Then he replaced the pillow.

"Now, Mr. Hamilton, as you place your head on this pillow, I want you to look up and see if you notice anything peculiar up there in that canopy."

Instead of lying down as he had been directed, Hamilton raised himself and started to get off the bed.

Pryor seized him by his shoulder.

"One moment, Mr. Hamilton. Don't you think you'd better lie down, as I suggested."

"I'll be darned if I will. Try and make me."

"Very well! Here, Lieutenant! Give me a hand here, will you? Take hold of that other shoulder and push his head down against the pillow."

With the fury of a trapped panther, Hamilton tried to fight them off. It took the combined strength of Pryor and the detective to force his head into the pillow.

Finding that his struggles were unsuccessful, Hamilton uttered a scream of terror.

THERE was an ominous click. Instantly a large white object shot out from the canopy, striking squarely on Hamilton's upturned face. But instead of crushing the man's head, the missile burst into a thousand fragments.

Startled by this unexpected happening, the spectators uttered cries of surprise. They began to talk to each other in excited tones.

Pryor released his hold on Hamilton's shoulder and motioned for Spangler to do likewise. The chemist put his hand to his face to make sure that it was all there. Then he scrambled off the bed and approached Pryor.

"A very cute little joke, old fruit," he tried to bluff. "But I can't say that I enjoy your sense of humor."

"So you think this is a joke, do you? Perhaps you'll change your mind when I charge you with the murder of Sidney Steele. Lieutenant Spangler, I suggest that you place this man under arrest."

"Well, I'll be——" Spangler interrupted his own exclamation with, "Guess you'd better put the bracelets on him, Cunningham."

"And if you don't mind another suggestion, I'd like to have his hands handcuffed behind him," Pryor said.

Hamilton protested vociferously to this indignity, but it was carried out nevertheless.

Above the confused babble that greeted this surprising episode, Pryor raised his voice. "Gentlemen," he announced. "You have just witnessed a reenactment of Sidney Steele's murder. The only difference was that when this trap was first set it contained a heavy lump of dry ice, which subsequently evaporated. I didn't want to make the demonstration too realistic, so I substituted for the lethal weapon a harmless hollow projectile composed of the same material they use in the movies to make the so-called 'breakaway' articles. I call you all to witness that Hamilton must have known what was going to happen or he wouldn't have fought so hard to avoid putting his head on the pillow.

"But why was it necessary for you to drag the rest of us into this?" Fellows wanted to know.

"I enlisted your aid in my little plot so that I could more easily induce Hamilton to walk into the trap of his own volition. Thus we caught him off his guard. Had he thought he was being suspected, it might not have been so easy."

At this point, Hamilton found his tongue. "See here, Pryor," he snarled. "I've had enough of this nonsense. You may think you're smart, but you can't get away with rough stuff like this. Just because I yelled when you tried to make me do something I didn't want to do, doesn't prove that I am a murderer. You may think this is good evidence, but try to convince a jury with such a crazy story as this."

"I wouldn't be so sure about the jury if I were you. You may rest assured that I have collected an abundance of evidence—more than enough to convince the dumbest jury that ever ate lunch on the county."

"Oh, yeah?" Hamilton jeered. "One thing you'll have to establish is a motive. You can't prove that I had any reason for wanting to kill my uncle. I had everything to lose and nothing to gain from his death."

"Lest you place too much reliance on that defense, let me inform you that I have discovered your motive. I ran across it when I interviewed Mr. Carson and Doctor Weller. The guess I made then was substantiated by a study of your company's books, supplemented with interviews with certain men from whom you have purchased supplies."

At the mention of the company's books, Hamilton's face blanched.

"You killed your uncle to save yourself from going to jail as a thief," Pryor thundered. "For some time you had been cheating him by purchasing inferior materials, substituting them for stock in the company's storerooms, selling the quality merchandise and pocketing the proceeds yourself. Your uncle didn't find you out until several customers had complained about the inferior quality of the goods you were selling them. Then he investigated and learned that you had been defrauding him. He accused you and threatened to call in the police. You persuaded him to hold off long enough for you to construct this diabolical trap of yours, and thus you beat him to the draw. Am I not right?"

Hamilton did not deign to answer this query.

The brief period of silence that ensued was broken by Doctor Weller. "Your pardon, Mr. Pryor, but, now that your murder affair seems to be revealed, don't you think you can permit the rest of us suspects to get back to our work?"

"Once more I regret that I must apologize to you, Doctor Weller, and I must crave your indulgence for just a moment longer. There's one more little link in my chain of evidence which I think I can fit in place now, if you and Mr. Carson and Mr. Fellows will be kind enough to help me. I can assure you that this will be the last request I shall make of you, however."

Pryor fumbled around in one of the packages he had brought with him and produced some false whiskers and a pair of dark glasses.

"You, of course, will recognize these props," he said to Hamilton. "I took the liberty of removing them from the bottom of your desk at the factory. I realize that it was a rather eccentric thing to do, but I also purchased three more beards and three more goggles, which I brought with me today. I'm going to ask all four of you to disguise yourselves as electricians."

Before any of the men had time to remonstrate, Pryor had deftly slipped a set of whiskers and a pair of spectacles on each of them in turn. Then he said to Cunningham, "Will you please ask the Filipino boy to come in here?"

When Armando entered the room, he was so aston-

ished that his beady eyes seemed to be popping out of his head. The four bewhiskered men were lined up in a row, with their hands behind their backs.

"I wish you'd look these gentlemen over very carefully, Armando, and then tell me if you've ever seen any one of them before."

It didn't take Armando long to exclaim, "Oh, yes, sir."

"Will you point him out to us?"

Without hesitation, Armando indicated Hamilton, who was the second from the left.

"You know who this man is, do you?"

"Oh, yes, sir! He is the 'lectrician—the man who fixes electricity lights."

"You are absolutely sure of that, are you?"

"Oh, yes, sir."

"And what makes you so sure?"

"Because I just remember that 'lectrician have scar over hees eye."

"Why didn't you mention that to us before?"

"Because I no theenk of him before."

"But you are sure the electrician had a scar over his right eye, are you?"

"Oh, yes, sir. Very much sure."

"Thank you, Armando." To the rest of the party Pryor said, "Gentlemen, let me express my appreciation of the help you have given us. That will be all."

As the men were getting into the police car, Pryor said in a kindly tone. "Good-bye, Hamilton. Sorry I had to do this. If you don't mind, I'll call on you tomorrow morning. I want to talk over our little wager with you."

Before Hamilton could answer, Lieutenant Spangler chimed in, "Say, Mr. Master of Mystery, there are a number of things in this case that are still mysterious to me. If you're downtown tomorrow A. M., suppose you drop in at my office and we'll talk things over."

"Most assuredly," Pryor concurred. "I'll be very glad to give you the lowdown, as you call it."

CHAPTER XIII

Spangler Gets the Low-Down

WHEN Lieutenant Spangler arrived at his office the following morning, he found Pryor waiting for him.

"You sure are an early bird," he greeted his visitor.

"Yes. I'm rather anxious to know how Hamilton is getting along, but I thought I'd better see you first."

"O. K. As I told you yesterday a lot of the dope in this case is still haywire to me. You got the right bird, all right, all right, but how you happened to suspect him is more than I can figure out. In the first place, he seemed to be so anxious to catch the guy that murdered his uncle. Murderers don't usually go around engaging smart fellows like yourself just for the sake of getting themselves nabbed."

"Hamilton probably thought that was clever strategy on his part. He reasoned that the person who is engaged to solve a crime would never think of suspecting the man who employed him."

"But no one else had any suspicions of him. Why didn't he let things rest the way they were?"

"Egotism is the best answer to that question. Egotism, supplemented by a certain amount of jealousy. Hamilton thinks he is supremely clever—especially along scientific lines. My success in solving problems that

baffled him has for some time been a thorn in his side. When he concocted his murderous plan, he thought it was so clever that nobody on earth could unravel it. He got me in on it in order that he might gloat over at least one lapse in my record for solving riddles—which so far has been 100 per cent. perfect.”

“I see. And do you think that Hamilton fixed up that box with the gun in it and mailed it to you?”

“I’m positive of it. The moment I read my name and address on the outside of the package I recognized it as coming from Hamilton. Like many scientists, he does a great deal of printing by hand. I ran across several samples of Hamilton’s printing, on the labels of reagents in his laboratory, and on the fly leaf of the Zole Company’s books. You know, of course, that the style of lettering done by any individual is just as distinctive as his handwriting.

“I’m not an expert, of course, but one little peculiarity in Hamilton’s mode of printing was enough to identify it to my satisfaction. It is the curve in the stem of the small letter ‘t.’ You’ll find that idiosyncrasy in my first name ‘Justin,’ as it was printed on the outside of the package. Compare it with anything else that Hamilton has printed and you’ll find an unmistakable similarity. And by the way, when you showed me the enlarged photograph of the erased address on the reverse side of the wrapper, I noticed the same unusual curve in the two t’s on the word ‘bottling.’ If you need any more evidence than that, it ought to be easy to find out how Hamilton obtained possession of that Luger pistol.”

“But how about the postmark on the package? How did Hamilton get the box mailed from Oakland?”

“That ought to be easy to explain, too. If you follow up a little suggestion, I am sure your men can find an airplane pilot who took a passenger up to the Oakland Airport and flew back with him the same day. It requires only a few hours to make that trip by air, you know.”

“That’s a good hunch. I’ll follow it up right away.”

“Thank you. And now I wonder if you could arrange for me to see Hamilton?”

“Sure. But before you go, there’s one more point I’d like to get cleaned up. The other day when we were talking this case over, you told me that you knew who committed the murder the first day you were put on the job. You also kind of hinted that if I’d been as smart as you, I ought to have known who did it too.”

“I’m sorry you got that impression, Lieutenant. Let me assure you that I had no idea of depreciating your intelligence. As I remember it, I said something like this: ‘From what you already know about the case, can’t you figure who the culprit must be?’”

“Yeah. That’s what you said all right, all right. And now would you mind telling me just how you expected me to guess that Hamilton was the bird who did it?”

“Certainly. You will recall that on the day we first visited Steele’s cabin together, I suggested that the crime might have been committed with a substance like ice. I asked Hamilton if he knew of any material similar to ice, which was hard enough and heavy enough to cause his uncle’s death but which would subsequently disappear without leaving a damp spot or any other trace. His answer was that he knew of no such substance.”

“Well, what of it?”

“Hamilton is a graduate chemical engineer. Yet he confessed to be ignorant of something which any high school student of chemistry would be sure to know. You

may be certain that Hamilton did know the right answer to my question. I knew it too, of course. The only reason why I put it to him was that I wanted to see how he would react. His deliberate denial convinced me that he had some ulterior motive for wishing to discourage that particular line of investigation.”

Spangler grinned and scratched his head. “Well, I guess I’ll have to hand it to you, Mr. Pryor. Up-until now I never had much use for these scientific guys, but I guess there must be something in science after all.”

“And now shall we go over and call on Hamilton?”

“We? Do you mean that you want me to come along?”

“If you can spare the time, I believe you will find it advantageous.”

“O. K.! Let’s go!”

CHAPTER XIV

Settling the Wager

THOUGH he was prepared for a surprise, Pryor was distressingly shocked when he saw Hamilton at the Los Angeles jail. Unkempt and haggard, the man looked as if he had not slept for several days.

Pryor extended his hand, but the prisoner ignored the gesture of friendship. “I want to tell you again that I’m dreadfully sorry this had to happen. But once I had undertaken the task, I couldn’t very well back out.”

“Oh yeah? Think you’re smart, don’t you? The Master of Mystery. The man who never fails to solve the problem. Well, let me tell you that you haven’t solved this problem yet. Yesterday you said something about our wager. You seemed to be pretty cocky about it. Think you’ve won it, don’t you?”

“Now listen to me, Hamilton. I’ve known you for a long while. At one time you were pretty well known as a football player. I never heard anyone ever accuse you of being a poor sport. I’ve also seen you play poker. Nobody ever had reason to call you a bum loser. I realize that this is different from football or poker, but the same principle applies. Why don’t you be a good sport and admit that you have lost?”

“What do you expect me to do? Give up without a fight?”

“In this case, fighting isn’t going to accomplish anything. The forces against you are altogether too strong. What you know already is only part of the story. Let me give you the rest of it.”

Briefly and clearly, Pryor described the links in the chain of evidence which he had welded together into what was undeniably an unbreakable fetter.

“Can’t you see how hopeless it would be to fight against that array of facts?” he concluded. “You may as well admit that you have lost the wager.”

“Suppose I did admit it? What good would that do you? As I recall the bet, if I lost I was to be your slave for a day and to do whatever you commanded me to do. Now that I am in jail, how do you expect to benefit from any such arrangement as that?”

“I wasn’t thinking of benefit to myself. I was thinking of your own welfare.”

“And suppose you did win the wager. What would you command me to do during the twenty-four hours specified?”

“My request would be very simple. And it would take a small part of a day to fulfill the obligation.”

"Please come to the point. What would that command be?"

"All I ask is that you confess in writing that you murdered Sidney Steele."

"Is that *all*?" was the sarcastic rejoinder.

"Yes, that's all. And my principal purpose in making this request is that I don't want to see you go to the gallows. Yesterday afternoon I had an interview with the District Attorney. I outlined the case to him and he told me that if you were brought to trial he would demand the death penalty. You know how successful he has been in obtaining convictions even with flimsy testimony to support him. With a case like yours, he couldn't possibly fail to win a verdict for the death penalty.

"On the other hand, if you will plead guilty, you will stand an excellent chance of escaping with a prison sentence. While the district attorney, for obvious reasons, would not make any promises, he intimated that your only chance to cheat the noose would be to plead guilty. It is with the sincerest spirit of friendliness that I now advise you to do so!"

There was a period of tense silence. Then the prisoner spoke:

"All right, Pryor. You win. I admit that I have lost the wager. I'll obey your command. I'll plead guilty!"

Then he turned to the detective. "Call a stenographer, Lieutenant, I am ready to dictate my confession right now!"

THE END

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The questions which we give below are all answered on the pages as listed at the end of the questions. Please see if you can answer the questions without looking for the answer, and see how well you check up on your general knowledge of science.

1. What is one theory about nerve impulses? (See page 655.)
2. How can the nervous system be metaphorically described? (See page 655.)
3. As pure white contains all the colors of the prism, what adjective could be applied to whiteness of marble, and whiteness of snow. (See pages 589 and 612.)
4. What is a catalyst? (See page 594.)
5. What is the theory of the constitution of the planetary atom? (See page 595.)
6. How is speech produced? (See page 616.)
7. What speech sounds are called unvoiced sounds? (See page 620.)
8. What is the effect of overtones in the voice? (See page 621.)
9. What would be a fair average range of the vibrations in the human speaking voice? (See page 621.)
10. What do harmonics in the musical scale originate from? (See page 622.)
11. Are the freezing points and boiling point of iodine near together? (See page 635.)
12. Describe sublimation. (See page 635.)
13. How does carbon dioxide solidify? (See page 636.)
14. How can carbon dioxide be made cheaply? (See page 636.)
15. How is solid carbon dioxide made? (See page 637.)
16. What substances act as catalysts in the Haber ammonia process and the sulphuric acid process? (See page 656.)
17. Where could submarines get oxygen except from the air? (See page 656.)

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THE negligence of surgeons, during their post-operative work, has caused exceedingly serious complications, if not death. In some cases, only surgical gauze has been left in an opening; in more rare instances operating implements were forgotten in a patient's body. Is it inconceivable, therefore, that a master surgeon might effectively perform a mysterious experiment so successfully as to baffle some of the greatest minds in the scientific, medical and detective fields over an extended period of time?



Bound securely to a chair with strips of gauze bandage and with a gag of the same material in his mouth, sat Peter Van Brunt . . .

A Matter of Ethics

By Harl Vincent

Author of "Venus Liberated," "The Seventh Generation," etc.

KNOW Frank Robeson, Bret?"
"The great ear specialist?"
"Yes. Operated on the President's sister a few months ago, and the papers boosted him plenty. He deserved it, too."
"Never met him, Dudley—why?"

Bret Garrison gazed speculatively at his friend, who sat hunched in a huge leather armchair in the lounge of his favorite club. Dudley Cowan had something unusual on his mind.

"Strange thing about Frank—a little in your line, perhaps. He failed miserably in an operation yesterday and had to turn it over to one of the assistants to finish."

"Mastoid?"

"Yes. Simple enough, too. He's done thousands of them and never failed; never lost a case. But he had to quit this one flat."

"H-hm. Why should that be in my line?"

A puzzled expression came over the wizened features of the little surgeon, who was chief of staff in the great Park Medical Center, New York's most modern institution.

"Why, Bret," he slowly replied, "I don't exactly know. Maybe it's just a hunch. But it was the queerest thing you ever saw. Right in the midst of it—scraping away the infected cells, you know—his fingers cramped. Couldn't hold an instrument and went into a sort of daze. Tascher finished it and Frank was a wreck."

"Dope?" Bret Garrison was sceptical.

"Not Frank Robeson. Nothing wrong with him physically, either. Examined him myself. He's—oh, I'm damned if I know—under some sort of influence."

"Hypnotism, perhaps?"

"Rats! You know better than that."

"Hasn't been in an accident, has he? Injuries, I mean, that might have affected him?"

"No. He's perfect I tell you; a magnificent specimen. He did have a dose of sciatica some time ago and a minor operation. But he's been fine ever since. That couldn't have anything to do with this."

"An operation for sciatica?"

"Sure. One of the sacral vertebrae, you know. A slight misplacement—pressure on the sciatic nerve—quite simple to correct."

"Yeah, I'll bet. But anyway, that's beside the point. What makes you think there's an outside influence?"

"Haven't a reason in the world. But somehow, it's uncanny. I can't help but feel it. It's in the air."

"Hasn't any enemies, has he?"

"Not Frank. Oh, of course, there's some professional jealousy. But that doesn't mean anything."

Bret shrugged his shoulders. Robeson probably had a bad night before the operation. "Well, what am I supposed to do?" he demanded, "Investigate the private life of this high-hat doctor?"

Dudley Cowan laughed, and the worried frown vanished from his brow. "No, I guess not," he grinned, "but it struck me as a mighty peculiar thing and I immediately thought of you on account of some of your scientific research. Don't know why. Best forget it."

"I will."

The two friends parted. But Doctor Cowan did not forget the matter, nor did Bret—for long.

SEATED at a long table in the library of his brownstone front in West Seventy-fourth Street, Bret Garrison fingered an exquisitely engraved pasteboard. Natalie Robeson! Five years since she was the idol of the younger set, the most popular debutante of her season. Now she was the wife of the famous Doctor Robeson. Wonderful family she had come from, too, and never a hint of scandal. Bret thought of his recent conversation with Dudley Cowan.

"Bring the lady in, Taylor," he said to his man, who hovered expectantly at his elbow, silver tray in hand.

Bret tossed back his disarranged hair and ran his fingers through its thick strands in the effort to make himself more presentable. He had just finished an afternoon of hard work in his laboratory on one of the upper floors.

The atmosphere of the gloomy old room changed with the coming of Natalie Robeson. Dainty and alluring, she appealed to Bret as a delicate bit of Dresden. He faced her gravely across the table as he saw that her eyes were wide with terror.

"It's about your husband, Mrs. Robeson?" he asked gently.

"Yes. Doctor Cowan sent me. He said—he thought you might be able to help us."

"Cowan's always getting me into something like this. He must think that I'm a magician. But, tell me the story, Mrs. Robeson. It may be that I can help."

"Thank you." The girl was twisting her glove in a knot as she spoke. "Doctor Cowan told you of the first failure. There was another yesterday—even more serious. Frank has tendered his resignation."

"Did Cowan accept it?" "No."

"He wouldn't," chuckled Bret. "Tell me, did this patient die?"

"No, but it was a narrow escape. Frank swears he'll never chance it again. And, oh, Mr. Garrison, there's more. I—I can not bear to tell you." She rose from her chair in her agitation.

"Please, now. You can trust me. I'll help if I can, though as yet I don't see where I fit in the picture. What is there besides?"

"At home. Oh, it's awful, Mr. Garrison. We were so happy. And now—now I am afraid. At night, sometimes, in the darkness and quiet, Frank has been seized by this—this influence. His hands—his strong, skillful hands—have wandered to my throat, clutching, clutching. Oh—"

The girl was frankly sobbing.

"My God! And you have told no one?"

"Not even Doctor Cowan. But it isn't Frank. He knows nothing about it in the morning. Something—someone is affecting him terribly. And it's not mental. It's an actual physical influence. I can feel it—a presence almost, there in the darkness. But no one is there."

"Do you know of anyone who would wish him harm?"

"Why—why no. Of course not." Natalie Robeson trembled violently and resumed her seat, burying her face in her hands.

Bret thought deeply while she fought to recover her composure. "I'd like to make your husband's acquaintance, Mrs. Robeson," he ventured.

She raised startled eyes to his anxious face. "He must not know I have talked with you. He resents interference bitterly; he looks upon this thing as a weakness he must overcome by sheer force of will."

"You've told him of the nocturnal incidents?"

"No—no! I dare not. He'd leave me—in fear for my safety."

"Who are his friends?"

"There are but two intimate ones. Doctor Peter Van Brunt, his lifelong friend and associate, comes first. Then there's Hobart Avery a more recent friend, but absolutely devoted to Frank."

"Hobart Avery of International Television?"

"The same."

"I knew him well a few years ago, Mrs. Robeson. I'll make your husband's acquaintance through him."

"You'll be very careful? You'll not let him know the reason?" There was frantic appeal in the eyes of Natalie Robeson—and something besides.

"You're holding nothing back?" Bret asked suddenly.

The beautiful young matron lost her poise. She flushed and stammered, "Why—why do you ask that? No, I tell you, no—nothing that has any bearing in this matter."

"Sure?" smiled Bret.

The long lashes lowered, but the girl's voice was calm as she replied, "Absolutely. There's nothing more you need to know. And, you'll help, Mr. Garrison?"

She looked up once more and there was a world of entreaty in her gaze; stark terror, too. Yet somehow, those violet orbs held in their depths an unfathomable mystery, a hint of something left unsaid.

Bret rose in sudden decision. "I'll help, Mrs. Robeson," he said, "all I can. And I'll be very discreet."

He would have none of her thanks and sighed his relief when Taylor, with austere disapproving mien, had ushered her to the door.

"SAY, you old sawbones!" Bret complained, when he reached Doctor Cowan by telephone, "trying to make a detective out of me again, aren't you?"

His friend was in nowise offended. "Natalie been to see you?" came his unruffled reply.

"Yes, and I had to agree to look into this thing. Wouldn't think of it, if you hadn't said what you did about the appearance of electric shock."

"It's serious, Bret."

"I know it. And now I want to talk with Robeson—and his two friends. Seems to me I've heard he's quite a golfer. Maybe we could arrange a foursome."

"The very thing. But I'll warn you, Robeson shoots par golf. He's way out of your class."

"So much the better. I'll have a chance to watch him. Do you know this Hobart Avery?"

"Met him once or twice, but don't know much about him. Why?"

"Just wondered. I know him myself and can ask him to make up this foursome. But how about Robeson and Van Brunt? Why don't you tell Robeson he must play some golf to get himself back in shape? Get Van Brunt in on it, too."

"I'll do it, Bret. But you'll have to be careful with Frank. He's touchy as the devil about this."

"So I understand. I'll watch my step."

"Got any ideas? What's wrong with Robeson, I mean?"

"No, but I may have some after golf. I'll call you again after I've talked with Avery."

"Okay. I'll put the bee in Frank's bonnet in the meanwhile."

Bret turned to one of his bookcases when he had replaced the receiver on its hook. He scanned a shelf of weighty volumes and finally extracted one of forbidding proportions. With this in his hands he settled himself by his reading lamp. He would call Hobart Avery at dinner time.

"WHAT'S your sudden interest in Frank Robeson, Bret?"

Hobart Avery did not take his eyes from the road as he asked the question. His speedy roadster was carrying the two men over the winding stretch of concrete that led through the woods to the iron gates of the Kilgore Country Club, where they were to join the two doctors.

"You've heard of his recent failures in the operating room?" countered Bret Garrison.

"Yes," said Hobart darkly, "but I've also heard of your sleuthing proclivities. And I warn you to lay off of Frank Robeson."

"What do you mean?"

"I mean that he is able to take care of himself. If he isn't, he has at least one friend who is able—and willing."

"Meaning yourself, of course?"

"Certainly."

Bret observed that Avery's jaw was set with stubborn determination. It was a strange situation, and one that required cautious handling.

"You haven't known Robeson very long, have you Hobart?" he inquired guilelessly.

"Two years only." Hobart Avery turned to look at his questioner and his eyes snapped. "But it seems like twenty," he continued, "Frank's the salt of the earth. Saved my daughter's life you know. She was dying—given up by four doctors. A streptococcus mastoid.

Quickest thing you ever saw. Why, in twenty-four hours the infection had eaten to her brain. Meningitis. No one else would operate. But Frank did. Three hours we paced the hall near that operating room. It was hell, I tell you. But she pulled through, and—well I've never forgotten it."

"Naturally not. He's a wizard, isn't he?"

"Was!" Avery's jaw set again.

"You think a lot of him, don't you, Hobart?"

Again those eyes turned from the road for a moment. They shone with something akin to passion. "I think—" he commenced, then hesitated, "but what's the use? You wouldn't understand. He's the squarest, finest he-man that ever stood in shoe leather. You have to know him as I do to appreciate him."

"And Natalie?"

They had reached the gates of the club and were entering the grounds. Avery brought his car to a screeching stop and glared at his companion.

"Don't bring her into this, Bret!" he hissed. "I've warned you before and I warn you again. There's more to this than you think, and I'll thank you not to meddle. Help Frank if you can, but do not intrude in his personal affairs. And God help you if he finds out that you're butting in."

Bret started to protest, but Hobart had stepped on the accelerator, and, with his shift lever in second gear, let in the clutch so suddenly that they were literally jerked from the spot. The car roared up the drive to the clubhouse and further conversation was out of the question.

Fine state of affairs, thought Bret, and becoming more and more mystifying. Looked more like a problem of the eternal triangle, than one requiring the attention of a scientist, with a flair for investigating the unusual. He was treading on dangerous ground. Probably had no business at all messing into this. But Dudley Cowan had asked him—there was the suggestion of an effect similar to that of an electric shock. And Natalie Robeson. She too had come to him; she was hiding something. Hobart knew something, too. There had been a peculiar light in his eyes when Natalie's name was mentioned. Perhaps he was the third party. But Hobart had a family, and he was obviously very fond of Doctor Frank. But then, many a man's best friend had—

THEY were at the clubhouse and two golfers were approaching the car. They greeted Avery in evident enthusiasm and he immediately presented them to Bret as the two doctors, Robeson and Van Brunt.

Bret took a quick liking to the jovial, sandy-haired giant who was Frank Robeson. He saw that there was a close bond between him and the alert, handsome Van Brunt. He saw, too, that there was a lack of cordiality in the greeting of Avery by Robeson's other friend, a carefully veiled feeling that would not be noticed by others, but which registered unmistakably in Bret's consciousness. This was no triangle. It was a quadrangle.

In the locker room Doctor Robeson was the personification of affability. It seemed that he went to special pains to make Bret feel at home; this to the evident satisfaction of Doctor Van Brunt. But Avery was moody and taciturn. He sulked like a boy, and Bret was much relieved when he found himself paired with Robeson for the game. Hobart Avery had changed greatly since he had last seen him.

At the first tee the honor fell to Frank Robeson and he made a beautiful drive, straight down the center of the fairway, for a full two hundred and sixty yards.

"Atta boy!" exclaimed Van Brunt.

"Afraid you'll be disappointed in your partner," said Bret, as Robeson retrieved his wooden tee.

"Don't let that worry you," laughed the doctor. "We'll trim 'em anyway. Avery isn't so hot either."

And again there came that flash of antagonism from the black eyes of Hobart Avery. Bret was puzzled. He could not determine whether the feeling was directed against Robeson or Van Brunt. It might be—and more logically so—that he himself was the target for the engineer's animosity.

It was a perfect day for golf; not too hot, nor yet too cool. Bret surprised himself by shooting even fives for the first seven holes. Doctor Van Brunt had one over fours. Robeson one under fours and Avery two over fives. Bret and Robeson had won four of the seven holes and halved three with their opponents.

At the eighth tee Frank Robeson looked up startled from his crouching position when he had teed up his ball.

He rose with a gesture of pain.

"Matter, Frank?" asked Van Brunt solicitously. "A twinge of the old sciatica?"

"No," grinned his friend, "not a sign of it since you fixed up that old back of mine. It's something else. I can't quite get it myself. Something like—in the operating room——"

He paled, and Doctor Van Brunt gasped his astonishment, shooting a quick glance in Avery's direction. Something passed between the two which Bret could not fathom.

Frank Robeson squared his magnificent shoulders and addressed the ball.

Crack! The prettiest drive of the day! He had driven the green—two hundred and eighty-five yards.

"Wow!" said Bret. "You should have those pains all the time."

Doctor Robeson grinned engagingly. He seemed immediately to forget the experience of a few moments previously.

Avery was next and Bret saw that he was nervous.

"Watch your slice on this one, Hobart," called Van Brunt. "It's out of bounds over in the back yard of your station there."

Hobart Avery did not reply and Bret glanced in the direction indicated by Van Brunt. A high steel fence skirted the fairway and this fence enclosed the grounds surrounding a squat building beside a steel tower on which there were a number of shining rods of varying lengths, arranged like the pipes of an organ.

"One of your television transmitters, Hobart?" asked Bret, when Avery had made his drive, which was a hook this time, but on the fairway and a good two hundred yards out.

"Yes. Multiple frequency. The shortest wave length is two and a half meters and the longest seventeen. It handles the transatlantic press stuff."

Bret did not reply, for Doctor Van Brunt had teed up and was about to drive. Smack! Another beauty! On the green, too. These husky doctors were good!

Bret dubbed his own drive, of course—topped it. He was too anxious after those good ones. He followed the others disconsolately, entirely forgetting the reason for his presence on this course.

TAKING three to the green, Bret was thoroughly disgusted with himself. Even Avery, with a brilliant mashie-niblick shot, was on in two. But the others awaited him patiently.

Doctor Robeson had a long putt to make. His ball lay fully twenty-five feet from the pin, but the green was level and smooth. He had sunk a couple like this before. Bret was watching closely as Robeson addressed his ball, crouching in his peculiar putting stance. Then a strange thing happened. The doctor's face went white once more and the perspiration oozed from his forehead in great beads. The cords of his neck stretched taut and his jaws worked spasmodically. His knuckles showed white from his grip on the shaft of the putter and he swung like a woodchopper, cutting a huge divot from the green and missing the ball entirely.

"Lord!" groaned the afflicted man. "It's on me again." He straightened up and looked piteously at his friends.

Bret was at his side in a moment, but was shoved away unceremoniously. The stricken golfer called for his caddy and handed him his putter. He could scarcely unbend his fingers from the shaft as the boy took it from him. Without a word of farewell he stalked from the green and started for the clubhouse.

Doctor Van Brunt seemed utterly astounded and Bret noticed that he cast suspicious eyes in the direction of the radio transmitting station. Avery's expression was one of baffled indecision. He stared at the dejected figure of Frank Robeson where it was vanishing over the hill on the adjacent fairway. He stared moodily at Van Brunt and then turned to Garrison. But he was unable to meet Bret's questioning eyes. It was evident he did not want to talk.

The game was over.

THAT evening Bret spent more than two hours in his laboratory before telephoning to Doctor Cowan. When eventually he did make the call he spoke crisply, confidently. A sprouting idea had taken root and was maturing rapidly.

"Dudley," he said to his friend, "the golf game was a corker. Gave me the clue to the whole thing."

"You don't say! And what is it?"

"Don't ask me now, Dudley. It's not entirely clear yet—all of it. But I want you to set the stage for a showdown."

"How? What do you mean?"

"Want you to argue Robeson into trying another operation. And I want Natalie Robeson and Hobart Avery there at the time, unbeknownst to Frank Robeson and to each other. Have them in separate waiting rooms or somewhere. Also I want permission to prow around in the hospital during the operation. Will you fix it?"

"Pretty big order, Bret. And I don't get your idea. But I'll do my best. Frank'll be hard to convince."

"Sure he will. But I'll bet you can do it somehow. You can be on the job yourself and have a couple of other surgeons there to take it out of his hands if he fails. But I believe I can prevent another failure."

"Great! I don't know how in the devil you dope these things out, Bret, but I've got to hand it to you. And I'll work on Frank immediately. But why do you want Natalie and Hobart?"

"Not just sure myself. Anyway, it's all to be a big surprise for everyone concerned."

"Who's the villain in the piece, if any?"

Bret laughed. "If I told you, you'd know as much as I," he said, "No, Dudley, I can't open up yet. You arrange this party and I promise it'll be a good one."

"I believe you. But I could crown you for holding out on me. Glad I roped you in on it?"

"You bet. But say! Don't tell anything to the police or the newspapers."

"Think I'm crazy? There's such a thing as professional ethics you know."

"Yeah," Bret agreed thoughtfully, "there may be a matter of ethics involved at that."

AS Doctor Cowan anticipated, it required his utmost persuasive effort with Frank Robeson to bring him again into the operating room at the Medical Center. He had pleaded with tears in his eyes, and it was only as a personal favor to his old friend and advisor that Frank finally consented.

The stage was set carefully. Hobart Avery, much mystified by Cowan's request, was on hand early and had been taken to the reading room on the ninth floor. Natalie Robeson, knowing only that her husband was to try once more and intensely excited over the fact, was in a waiting room on the eleventh floor. Bret Garrison kept out of sight until the wheel-table had borne the patient through the white doors of the tenth floor operating room. Then he might have been observed wandering in the corridors with a small black box in his hands, a box that strangely resembled a radio receiver with a miniature loop antenna on its cover.

Thirty minutes later he waited at the door of the operating room, his clothing disarranged and a large welt appearing beneath his right eye. The black box was no longer in his hands.

There came the sound of voices from within and the door burst open. Doctor Robeson, quietly jubilant, emerged arm in arm with Doctor Cowan. They conversed in excited undertones.

"Oh, there you are," said Dudley Cowan, glimpsing Bret, "Want to tell you the operation was a success. One of his best."

"I expected as much."

"Hello, Mr. Garrison," Frank Robeson greeted him, "Dudley's been telling me you wanted to see me after I finished."

"I do," said Bret solemnly, "and I'm afraid you'll not like what you're going to see."

Robeson stared from one to the other uncomprehendingly. He knew only that his affliction had passed from him.

"What on earth happened to you?" asked Dudley suddenly, obtaining his first good look at Bret's rapidly swelling eye.

"Bumped into something I didn't see in time," replied Bret sourly, "Never mind that. I wish you'd both come with me. And Dudley," he continued in an aside, "send for the others."

He led the way along the corridor to the private lift which carried them to the laboratory floor. Doctor Robeson was seething with questions, but Dudley Cowan nudged him into silence. He had seen Bret's work before.

Passing by the open doors of the bacteriological laboratory, Bret paused at another door and produced the key.

"Van Brunt's private workroom!" gasped Cowan.

"Yes," said Bret drily, "and you'll find your friend

in a vile humor. He was intractable and I had to use a little rough stuff with him."

"Ha!" chuckled Dudley Cowan, "Hence the blue eye."

Bret grunted but did not reply. The door was open and they saw that Van Brunt's laboratory was a scene of the wildest confusion. Bound securely to a chair with strips of gauze bandage and with a gag of the same material in his mouth sat Peter Van Brunt, his usually immaculate clothing torn and soiled beyond belief. Frank swore.

"H-hm," whispered Cowan admiringly, "and just see the other fellow. But what's the idea?"

"Good Lord!" exclaimed Robeson, in amazement, "what have you done to my friend?"

He was on his knees tugging at the knots which held Van Brunt a helpless prisoner.

"Friend?" growled Bret, "You'll learn how much his friendship amounts to. He's the bird who's been putting you into all this trouble, and if I hadn't tied him up he'd have done it again tonight."

"Peter Van Brunt?" exclaimed Cowan incredulously, "Why he's been Frank's chum since they were boys! Are you sure?"

"You bet I'm sure! Here—watch this!"

Van Brunt was free and he pulled himself erect, facing his accuser with a sardonic grin.

"Well, Mr. Sherlock Holmes," he grated, "now that you've got the goods on me, I suppose I may as well confess."

Frank Robeson stared in amazement from one to the other—at the chaos of the disordered room. He still could not understand and was boiling with indignation. At that moment Natalie entered the room. In a trice she was in her husband's arms.

"Oh Frank," she breathed, "you've succeeded. I'm so glad." She turned and faced the others. "But Peter; Dudley; Mr. Garrison," she said, "what does this mean?" She surveyed the excited group.

"It means, my dear," replied Dudley Cowan, "that Van Brunt has been exposed by Garrison. He's the skunk who's caused the trouble."

"Peter!" Natalie's voice was panicky and she flushed to the tips of her shell-like ears.

"Is this true?" thundered Frank, facing his former friend.

"It must be," replied Van Brunt, unabashed, "since this detective friend of yours says it is." He scowled darkly at Bret.

"He knows dam' well it's true," growled Bret, who was itching to mix it again with the oily-tongued doctor who now stood brazenly defiant with arms folded over his chest.

"I'll have to be shown before I'll believe it of him." Frank Robeson was stubbornly loyal.

BRET picked his little black box from a nearby shelf. "This," he said, "is a short wave radio receiver with a direction-finding loop antenna. With it I located the powerful transmitter you see on that table. Van Brunt already had started it to queer the operation and I was just in time to stop him."

"What," asked Robeson, "has radio to do with my failures?"

"Everything. I tumbled to it when your spell came on at the eighth green out there at Kilgore. You'll remember we were very close to the transmitter operated by Avery's corporation. Van Brunt's reaction led me to

suspect him at the same time. Though puzzled by the phenomenon, he at once connected the occurrence with the nearby transmitter, as I saw by his glance in its direction."

"But how? How can this be? I'm not a robot who can be controlled electrically." Frank Robeson was still unconvinced.

"That's exactly what you are, through no fault of your own. That's another thing I learned, or was led to suspect, out there on the Kilgore golf course. When Peter Van Brunt performed that simple operation on your spine several months ago he buried in one of the nerve ganglia a tiny silver capsule. This capsule incorporated a miniature radio receiver capable of picking up short wave energy and conveying definite electrical impulses to your brain over that marvelous network of telegraph lines that is your nervous system. As you know from your laboratory work with the oscillograph, the nerve impulses are electrical; you have analyzed them yourself by means of the electro-neurographs. I found that Van Brunt had specialized in such work. He knows all about it. And in sending his impulses to your brain through his cleverly conceived radio means, he duplicated such impulses as he knew would produce the effects which proved so disastrous to you. It was mere coincidence that the powerful short wave radiations from that television transmitter produced results so very similar."

The listeners were awed to silence by these amazing revelations. Yet they could not refuse to believe.

Hobart Avery had entered the room and now listened, white-faced. Natalie Robeson twisted her fingers in extreme nervousness. Her husband hung on Bret's words as if his very life depended on them. It was hard to have his idol thus brought crashing from his pedestal. Peter Van Brunt was the coolest person in the room. He lighted a cigarette and inhaled its smoke with nonchalant satisfaction.

"Why, in God's name, did he do it?" Doctor Frank's voice was pleading.

"That is one thing I have been unable to learn," said Bret, "the motive. There must be a motive for so devilish a scheme as his. And I tell you, Doctor, he has done more than you know. In the late hours of the night he has worked at this transmitter, sending forth impulses which reached your brain where you lay sleeping in your apartment, a few blocks away. These have caused you to lay hands on your dear wife. She has feared you for weeks—has scarcely slept a wink in terror of those strong, clutching hands of yours."

Peter Van Brunt dropped his cigarette to the floor and crushed it beneath his heel. Frank Robeson groaned and drew his hand across his eyes to blot out the vision conjured up by Bret.

"No! No!" he babbled, "I didn't—not that! Natalie!"

She nodded slowly, unhappily. Frank turned savagely on the perpetrator of this unthinkable wrong.

"Peter!" he snarled, "come clean now! What made you do it?"

"Perhaps," smiled Van Brunt meaningly, "Natalie will tell you."

"You—you—!" Frank threw himself at his tormentor.

But Bret was quicker and he held the enraged man in check.

"Easy now," he begged. "Easy, old man. Let's get to the bottom of this before we have any fireworks."

Natalie bit her lip in an agony of apprehension.

"I'LL tell you, Frank!" shouted Hobart Avery, who had hitherto remained silent. "This snake in the grass has been making love to Natalie for more than a year. She's been afraid to tell you, for fear you'd blame her. She knew your devotion to him and I did too. I knew myself what was going on, but hesitated to interfere for the same reason as her own. She repulsed him, of course, and he's seen fit to plan this reprisal. God knows what he thought he'd gain by it, but he nearly ruined you professionally and was trying to make it impossible for Natalie to live with you. But she's true blue and she stuck."

"Ah!" exclaimed Bret. "Now it comes out."

Dudley Cowan's eyes glistened suspiciously and the color was returning to Natalie's cheeks.

"I swear it, Frank," continued Hobart, "I was afraid for you and Natalie. I racked my brains for means of warning you, but could think of none. I suspected Peter of this influence that was ruining you, but I couldn't lay my finger on it. Then, when Bret Garrison got in on it, I was still more worried. I knew of some of his previous successes in special investigations and was afraid he'd learn of the situation between Natalie and Peter and wouldn't understand. It might make trouble for you. Guess I wasn't very decent to Bret, but I was so upset over the thing I didn't know on which end I stood. And now—"

"And now, you dumbbell," interrupted Frank Robeson, gripping his shoulder affectionately, "everything is all right. I understand. I'll have that capsule dug out and we'll start all over."

Natalie gazed at him in wordless relief and happiness.

"How about him?" asked Bret, jerking a contemptuous thumb in Van Brunt's direction.

Natalie shuddered as Frank turned a murderous stare on Peter.

"First off," snapped Dudley Cowan, "his resignation from the staff of Park Medical is accepted here and now."

Van Brunt still grinned sardonically. His nerve was colossal.

"There'll be no publicity?" ventured Natalie.

"No, virtuous matron," smirked Van Brunt sarcastically, "there'll be no publicity. A matter of ethics, you know. They wouldn't dare. It'd be a black eye for Park Medical—a stain on the honor of the profession."

There was a bellow that might have issued from the throat of an angry bull, a feminine scream. Frank Robeson was across the room in a single bound. Peter drove in a vicious left to stop him, but Frank ducked it and came up with a terrific right to the jaw—just one. Peter Van Brunt crashed to the floor, where he lay in a grotesque heap amidst the wreckage of some of his furniture and equipment.

Doctor Cowan bent over him and felt of his pulse. "Oh, boy!" he exulted, "that was a peach! Knocked him cold as an icicle. His head'll ache for a week."

Frank nursed the knuckles of his right hand sheepishly. "Sorry, Natalie," he apologized. "Had to do it."

He turned to Bret. "That, Mr. Garrison," he said feelingly, "was *not* a matter of ethics."



A SMALL quantity of a chemical can produce impressive results. Catalytic action is so complete a mystery today that this story of appalling chemical action reads like a picture of the future. In the Haber ammonia process, iron performs its miracles; the same is done by platinum in the sulphuric acid works—and our new author from England gives us here a clever story dealing with the true romance of chemistry.

The Sphere of Death

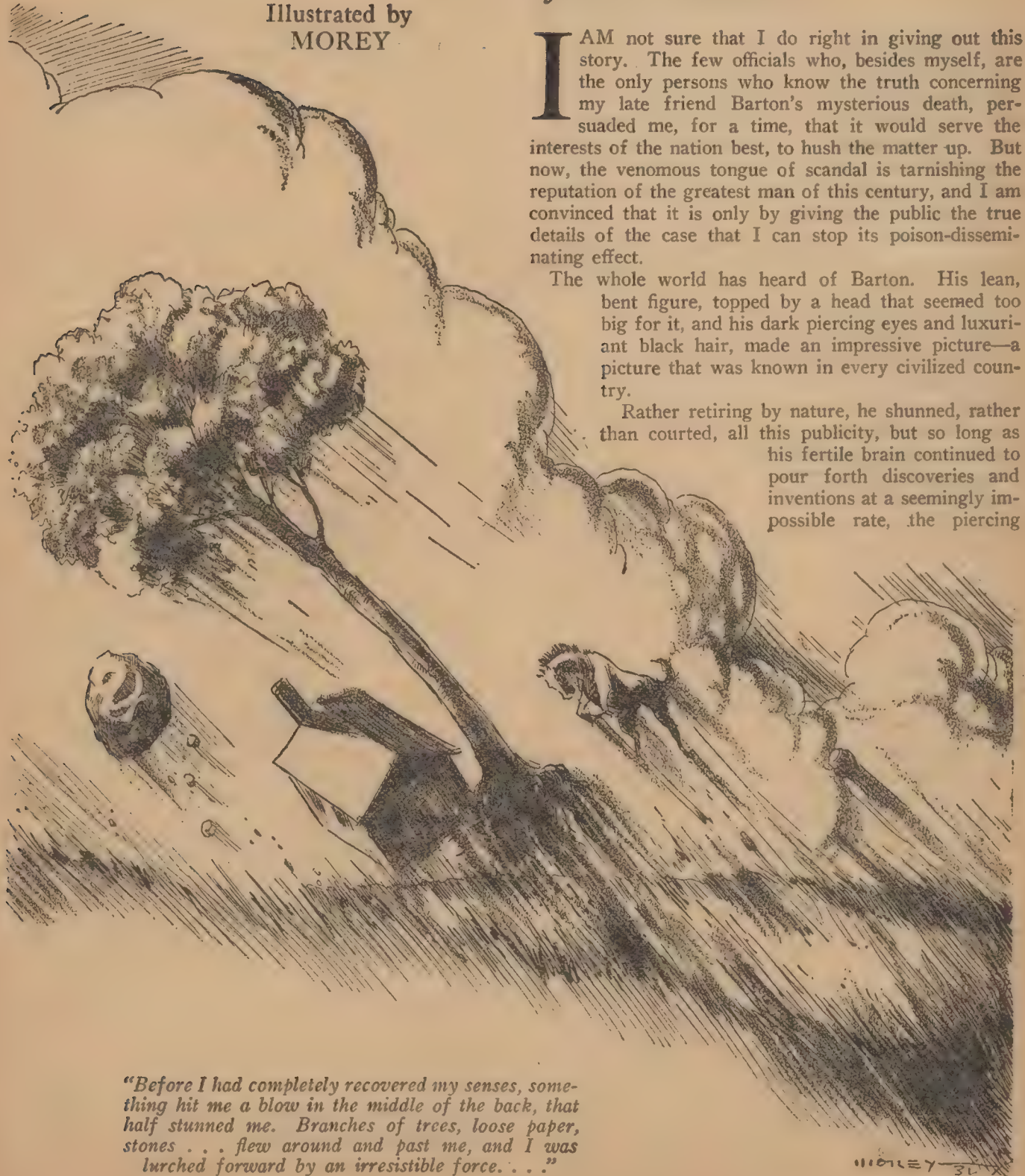
by J. W. Groves

Illustrated by
MOREY

I AM not sure that I do right in giving out this story. The few officials who, besides myself, are the only persons who know the truth concerning my late friend Barton's mysterious death, persuaded me, for a time, that it would serve the interests of the nation best, to hush the matter up. But now, the venomous tongue of scandal is tarnishing the reputation of the greatest man of this century, and I am convinced that it is only by giving the public the true details of the case that I can stop its poison-disseminating effect.

The whole world has heard of Barton. His lean, bent figure, topped by a head that seemed too big for it, and his dark piercing eyes and luxuriant black hair, made an impressive picture—a picture that was known in every civilized country.

Rather retiring by nature, he shunned, rather than courted, all this publicity, but so long as his fertile brain continued to pour forth discoveries and inventions at a seemingly impossible rate, the piercing



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searchlight of publicity followed him, even into his most private relations.

It is no doubt just as well known that he always refused to make more than a very small profit from his inventions, preferring that they should be distributed as cheaply as possible for the common good of the people.

Even so, I doubt if the general public realize how great-minded was the idealist, whom they lost when Barton left this world. Like that well-known writer of scientific romances, who died some twenty years or so ago, H. G. Wells, it was one of his favorite hobbies to write down his idea of the Utopia towards which man is struggling. He had not the art of creating a picture in words, however, and these efforts, therefore, have no literary value, as have Wells'; they serve only to show how fervently real was the idealism of my late friend.

By relating the true tale of the glorious act of self-sacrifice that ended his life, I hope to show how my friend was thwarted in his unselfish ambitions.

The last invention that he gave to the world before he died was an improved method of storing electricity. By driving a current through a solution of two salts, he managed to synthesize a minutely small quantity of a highly complex and very dense compound. This was completely stable until brought into contact with an oxide of zinc, which caused it to break down, giving out in the process electricity equal to the amount that had been used to build it up.

So small was the quantity of the compound precipitated from the solution by an electric current, that once he had perfected a method of harnessing the power released by it when brought into contact with the oxide of zinc, Barton found that he could contain sufficient power to drive a fully loaded train right across America in a space that would formerly have held only a six-volt accumulator.

The possibilities of this invention are not even now fully realized. It seems impossible to us that people were once contented to chug along in automobiles driven by the power of explosions of combined air and petrol vapor, and that various great falls, scattered all over the world, were used to generate electricity only for their immediate localities, instead of for the general populace; but the project that is at present under way for a flight to Mars by using Barton's accumulator, and the recent invention that enabled submarines to extract their own oxygen from the sea, thus making them independent of a surface air supply, show that we have by no means reached the limit.

Only I and a few others, however, know of another discovery that he made at the time, incidental to the perfecting of the accumulator.

I was in his laboratory, watching him at work, when it happened. Ultimately, as every schoolboy knows, he returned to the original oxide of zinc for the breaking down of his compound, but at one period, just before he gave his invention to the world, he carried out a series of experiments on other substances, in order to find out if any of them would give a better result.

He was using nothing but the minutest fractions of his compound for these experiments, and it was lucky for us that he used no more. The afternoon was hot and heavy, and for three solid hours I had sat in his laboratory and watched him apply substance after substance to his compound, all with no result. He was wandering among the salts of—no, I will not say what, for fear that somebody should try them and discover

it, and thus render useless Barton's act of self-sacrifice. Let it suffice for me to say that when he tried it with a salt of a certain metal, the catastrophe occurred.

Gently he lowered the salt upon the compound, watched for a few seconds in silence, and then leaped back with a cry of astonishment. The sound awakened me from my rather bored indifference, and I jumped forward to see what the matter was. Then I, too, exclaimed aloud in my amazement.

The minute crystal of salt, and the almost invisibly minute speck of compound were both surrounded by a brilliant crimson ball of light!

For three seconds that seemed like hours we watched it. The ball rapidly grew larger, six inches across, a foot across, two feet across. Its vibrations raised a sound that grew shriller and shriller, like a woman screaming in agony. As it grew bigger, its color changed, from red to orange, from orange to yellow, from yellow to green. By this time it had almost reached where we stood, when suddenly, I cried, "Look!, the bench is gone."

IT was true! Within the radius of that awful globe, which now was glowing a vivid blue, there was a blank and terrible nothingness. Bench, retort, bottles, flasks, all had vanished like a puff of mist. They were not merely invisible, for the ball was transparent, the wall and cupboard opposite were plainly in view. No, they had completely disappeared!

A suffocating horror seemed to grip my throat, and I could do nothing but stare in a hypnotized fashion, while the confines of the sphere grew nearer and nearer. Lucky it was for me that Barton's wits were more about him. "Out of this, quick!" he screamed, and catching hold of my collar he dragged me through the door, which fortunately was on our side of the room.

Even when we had attained the open air my senses did not completely recover. Barton, however, did not wait to revive me. Returning his grasp on my collar, he dragged me away as if I had been as light as a child.

The next thing that I clearly remember was both of us standing, breathing heavily, in a little clump of woods near Barton's laboratory, which fortunately was situated in the open country.

By this time the sphere was almost past the violet stage, and had become practically invisible. Its contours, however, were plainly marked. Deep into the earth it had cut. We could see several strata laid bare in the circular hole that it had made, which was growing deeper and larger.

"How long will it continue to grow?" I shouted into Barton's ear. He shook his head. No sound of human voice could be heard above the intensely shrill scream of that ball of death.

Fortunately I had my notebook and pencil with me, and taking them out, I scribbled down my message. He took the pencil from me and wrote back his answer. "I don't know. Perhaps forever. Depends on whether it gets its power from its original source, or if, like combustion, it feeds on what it devours."

I started with horror at the last suggestion. I had not had time to think clearly on the matter before; now it struck me with all its force. Supposing, as Barton suggested, the sphere fed on what it devoured? A momentary vision of this world melting away like hot butter, whilst that shrill scream echoed across the universe, flashed across my mind, and I trembled like a leaf.

Before I had completely recovered my senses something hit me a blow in the middle of the back, that half stunned me. Branches of trees, loose paper, stones and dust, all flew around and past me, and I was lurched forward by an irresistible force. Sickened, I realized that I would be pushed into that circular hole that marked the confines of the annihilating sphere.

I tried to scream, but a gale of wind blew into my face, and no sound came. For two horror-laden seconds I struggled to withstand the power that was driving me inwards, nearer and nearer.

Now I was but three steps from the brink, now two. I tried to grip more firmly with my feet, but the ground was loose and gravelly, and I did nothing but slip, and lose a few more precious inches.

Then a branch, torn from a near-by tree, hit me on the side of my head, and I pitched forward.

WHEN consciousness finally returned to me, I was at first aware of nothing but a splitting headache. For a few seconds I lay thinking of that alone; then I was brought to myself by the sound of Barton's voice calling my name.

I endeavored to sit up, but something was pinning me down. Despite my head I managed to answer with a feeble shout, which was answered by a joyful cry from Barton. "All right," he said, "I'm coming."

A few seconds later he was digging and pulling away at the heap of debris that covered me.

When at last my body was clear, I was thankful to find that the headache was the worst injury that I had sustained from my experience. No bones were broken in any of my limbs, nor was I very much bruised.

"So glad you're all right, old chap," gasped Barton. "I shouted to you to lie down, but I suppose you couldn't hear me above that din."

"No, I couldn't," I replied slowly, "but I can't understand what happened. What pitched me into here, and why didn't I disappear with the rest of the things?"

"Whatever it was that was giving off that force exhausted its supply," was the reply, "and, of course, the air rushed in to fill the space that it left, taking you with it."

"Then it doesn't feed on what it devours," I murmured in relief.

"No," Barton shook his head emphatically, "it must depend on its original source for all its powers. There are two things that I don't understand, though. One is why, when it disintegrated the air that was within its sphere, for disintegrate I suppose it did, some more did not rush in, thus causing a gale blowing into it all the time. The second is, if the force was given off by my compound and that crystal, and if they were still affected by gravity, why did not the sphere descend into the earth, making a deep cylindrical hole?"

"I don't know," I replied, rather snappily, "I'm afraid, for my head was troubling me, 'and what's more, at the moment I don't care. Let's get out of this place.'"

Picking our way carefully over the scattered debris, we came to the edge of the pit, and there a new difficulty faced us. More smoothly cut than by any knife, the sides curved up in front of us, offering not even the semblance of a foothold.

Bruised and shaken by the events of the day, all the spirit was knocked out of me, and the sight of those seemingly insurmountable heights nearly reduced me to tears.

"We can't possibly climb up there," I moaned. "We shall have to stay here until we starve to death."

Barton laughed, and clapped me on the back. "Buck up," he said, "we're not dead yet. You sit down and make yourself comfortable, while I look around and see if there is any way out."

Only too thankful for his offer, for my head had begun to sing again from the reaction of the blow that it had received, I sank down on a comfortable heap of sand, and closed my eyes. "I'll be back soon," he continued, and I heard his footsteps fade away.

Perhaps it will seem to the reader that I ought to have spent my time worrying about the predicament in which we found ourselves, or considering the possibilities of Barton's discovery. All that I can say is that any who feel that way, can never have experienced the violent reaction that follows such a day of excitement as I had passed through. Within two minutes I was sound asleep.

How long I slept I do not know, but it seemed only a second later that Barton was shaking my shoulder to awaken me. "I've found a way out; I've found a way out!" he shouted excitedly.

By this time my head had begun to throb viciously, but this news made me slightly more cheerful. "Good. Where is it?" I asked.

"Come along, I'll show you," and Barton raced away like an excited child.

I rose to follow him, and staggered forward for a few steps. The effort, however, was too much for me. The clean cut sides of the pit, and heaps of dust, broken tree branches and stones, swam giddily before my eyes. "Barton, help me," I cried hoarsely.

With an anxious look upon his face my friend turned back. "I didn't know you were as bad as all that, old chap," he said as he came up to me, "however, I'm afraid that we shall have to get out somehow. Try putting your arm around my shoulders, you may be able to get along that way."

I did as he bade me, and found that despite my giddiness I was still capable of making a slow progress.

My memories of the rest of the journey are a chaotic jumble. I have an impression of loose sand into which we sank up to our ankles, of sharp stones that tore our shoes, of prickly branches that tore our faces and clothes, but no coherent notion of which direction we took.

I know, however, that Barton's way out consisted of a very tall tree, that had been torn up by its roots, and was now lying over the side of the basin, making a firm, if somewhat steep path, up to the top. In my normal state the climb would have presented absolutely no difficulties to me, but I was then in such a condition that it is little short of a miracle that I managed successfully to scale it. Indeed, I would never have done so, had it not been for Barton's assistance.

He proved how true a friend he was by tying our waists together with strips of cloth that he tore from his laboratory overalls, making sure that I should not fall unless he came as well. He also led the way, testing all the foot and hand-holds, and shouting down warnings to me as I followed.

My recollections of the climb are even more fragmentary than those of the journey. A few glimpses I can recall of waving green branches, of a smooth and slippery trunk, and, as we got nearer the top, of mould-covered roots. Once, too, I know I slipped, and hung for a few dizzy seconds over what seemed to be a co-

lossal drop. How Barton ever got me back to the trunk I cannot say.

However, at last, after what seemed like an eternity, we arrived on level ground.

Still tied together, we walked slowly to a near-by mossy bank, and sat down to rest and survey the scene.

As I sat there I began to realize how titanic must have been the force of air that rushed in to fill the vacuum. Everything that had not been firmly fixed had been swept forward into the pit. The trees were bent over and broken, the branches torn from them, and they were completely denuded of leaves. The black earth gaped barely where the stones and small plants had been torn away. From the edge of the pit there sounded the whimpering of some woodland creature, dying in agony.

It was the latter that aroused Barton from the stupor into which we had both fallen. Rising unsteadily to his feet, he began to untie the cloth round his waist. "Where are you going?" I asked wearily.

"To put that thing, whatever it is, out of its agony," he replied. "I can't bear to leave it like that," and he started off. My eyes followed his movements for a little while, but my mind must already have started to wander from the shock it had received for I remember that a few seconds later I was wondering what he was looking for. His laboratory, perhaps? He had had a laboratory here a little while ago; now it seemed to be gone.

Perhaps he was looking to see who had dug that big hole? That hadn't been there before, had it? Perhaps he was going to dig a hole himself, and build something. Of course, a sand-castle! That was it! Barton was going to make a sand-castle!

I began to laugh wildly at the idea; peal after peal, rising shriller and shriller with the note of increasing hysteria. Barton turned from his task, and began to run back to me.

TWO months passed before I recovered from my delirium. When at last I began to climb slowly and painfully out of this temporary hell of my diseased imagination, and began to regain consciousness of my surroundings, I found myself in a quiet room in an expensive nursing home.

For a day or two, although in complete possession of my faculties, I lay almost without moving, weary beyond the power of words to describe. Soft-footed nurses padded in and out. Suave-looking doctors held whispered consultations at the head of my bed. Day followed night, and night followed day, and still I lay prone, aware of everything, but without a flicker of interest in anything.

Not until this stage had passed, and I was so far recovered as to be able to walk by myself in the verandah of the nursing-home, did Barton venture to visit me. This, however, denoted no neglect on his part, as might be supposed by a superficial reader. Nothing is more likely to cause a relapse in a patient slowly recovering from a painful experience of the type from which I suffered, than the sight of any thing or person that might remind him of the experience, and it was knowledge of this that kept Barton from coming to see me.

When at last he did come, however, it was interesting news that he brought with him. I remember the day of his visit as if it were yesterday. It was a warm sunny day, early in July, and I had walked out on the verandah, and had seated myself on one of the easy-chairs. I was gazing pensively across the spacious grounds of the

nursing-home, watching the fleecy little clouds chase each other across the blue sky, with their shadows trailing behind them on the ground, making dark patches that moved rapidly across the turf beneath me, over the hedges and woods that bounded the grounds, into the fields beyond, and so away over the horizon.

My mind was aroused from a blissful blank of semi-sleep by the sound of a door opening behind me. Idly curious I turned my head. "Barton, old man!" I cried, in a joyfully surprised tone.

"Well, old fellow, how are we now? Fully recovered, I hope," came the hearty response.

"Well on the way to it, anyway," I replied, shaking him by the hand. "Take a seat and tell me how you've been getting on all this time."

At this invitation he flung himself into an easy-chair that was placed next to mine, and began to talk of everyday matters.

For a few minutes I waited, hoping that he would speak of the marvelous discovery that I had witnessed him make, but no word of the affair passed his lips. Then I was seized with a horrible suspicion. Supposing that the event had been nothing but an hallucination? I had taken it for granted up till now that it was the cause of my breakdown. Supposing that it had been nothing of the sort, but merely one of its effects?

At that thought I could contain myself no longer, but burst out with, "What about the disintegrating ball?"

A shadow passed over Barton's face. "Are you sure that you're well enough to hear about it, old chap?" he asked seriously.

I laughed aloud in my relief. "Of course," I said, "I'm only too glad to know that it was not an hallucination."

Barton smiled at the idea, then he leaned towards me confidentially. It was plain to see from the expression on his face that the matter had been uppermost in his mind all the time, although he had not liked to approach it out of consideration for me.

"I haven't made the thing public yet," he said in a quiet tone, "but candidly, I think that I have stumbled across one of the most epoch-making discoveries of the age. While you were ill, I was experimenting."

"You don't mean that you've been putting those two substances together again?" I gasped anxiously.

My friend laughed aloud, and slapped his knee, as if in appreciation of a good joke. "Again?" he said, "of course I have. Again and again a dozen times. Always using the minutest fractions of each, though, I assure you."

"And what have you discovered?" I asked interestedly.

"Well," he settled himself back more comfortably into his chair, "first and foremost I've discovered why the air didn't rush into the sphere continuously. It has a very slight repelling influence, as well as its disintegrating powers. The influence upon ordinary substances is insufficient to make any difference to such rarefied matter as air. However, if a current of electricity is passed through a piece of aluminum, the repelling influence exerted upon it becomes a great deal stronger. In fact, if the current is varied, the disintegrating ball can be made to float about like a soap bubble in a current of air."

"But if it's growing bigger all that time, surely that must be dangerous," I interrupted.

The response was a short laugh. "Listen to me," in-

sisted my friend good-humoredly. "The ball does not necessarily grow larger rapidly. In fact it does not necessarily grow larger at all. The compound is responsible for its growth, as well as for the original release of the power, and the amount of compound determines the ultimate size of the ball. The length of time that it lasts depends on the amount of crystal used. As far as I can learn the sphere does not descend into the earth, because the power is released immediately upon contact between the two substances, and as they are both resolved into pure force, they are no longer affected by gravity."

"So that if you regulate the amount of compound and crystal used, you can get a disintegrating ball as large and as long-lasting as you like?" I asked.

"Exactly," Barton rubbed his hands together, "you've hit the right nail on the head, old chap. And, of course, with an electric current and a bar of aluminum, we can drive it wherever we want it to go. What do you think of that? Dynamite is out of date now. Why, there is no engineering feat that we need be afraid to undertake! The Channel Tunnel? Pooh! We'll have a Sub-Atlantic one, and a level road through the Alps. We'll lower the Sahara, and let the sea in on it! We'll do a thousand and one things to make the world a better place to live in."

"You mean you will," I said, smiling at his eagerness, and with a feeling that amounted almost to shame, as I thought of the unselfishness of his point of view. "Make the world a better place to live in," not, "Make some money by it." If only there were more like him.

At this point our conversation was interrupted by the entry of a nurse. "I'm afraid that you'll have to leave now, Mr. Barton," she said firmly, "otherwise your friend will be getting over-tired."

Reluctantly Barton rose to his feet. "Suppose I shall have to depart, then, old man," he said, gripping my hand firmly. "I'll let you know what progress I make."

"Please do," I replied. "I'm as eager as you are to know all about it."

Determinedly the nurse ushered him from the room. "Cheerio! I'll be back as soon as I can," he waved from the door as he disappeared. "And now you must come to bed, sir," the nurse said, turning to me. I shrugged my shoulders, and surrendered myself into her hands.

OVER a month passed before Barton found time to visit me again, but when I heard what had happened during that interval I was quite willing to excuse him for his prolonged absence.

By this time I was thoroughly on my feet and was expecting at any moment to be told that I might resume my normal life.

August was carrying out the promise of the preceding month with a succession of long, warm, sun-soaked days, with nothing but the gentlest of breezes to relieve the heat; and it was on such a day that his visit occurred.

The moment that I heard that he had arrived, I rushed down to meet him. Hearty handshakes and slappings on the back passed between us, then slipping my hand under his arm I led him out into the gardens.

"We won't have any nurses interrupting us here," I said with a laugh, "So you can just plunge straight away into the subject that I'm longing to hear about. How are things progressing with the disintegrating sphere?"

"Fine!" Barton showed his firm, white teeth in a glad

smile. "To tell you the truth I've been thinking rather a lot about the matter lately, considering its actual use, rather than the improvement of the apparatus, and I've come to the conclusion that, as the invention is rather a big one to be handled by a private company, it would be better for everyone concerned if I handed it straight over to the government."

"Hand it straight over to the government?" I gasped incredulously. "Aren't you going to make any profit out of it yourself?"

"Oh, I suppose I'll get a pension from them," he shrugged his shoulders as if the matter were an unimportant one.

"But why to the government?" I asked again. "Why not to a private company? Couldn't they make just as much use of it?"

"I doubt it," replied Barton. "The uses to which it might be put are so many and varied that I cannot see any private company exploiting them all. No, it is decidedly a matter for the government to control, although they might find it expedient later to let the license for using it in any particular line to private companies."

"And has the government obtained control of it already?" I queried.

"Oh no," was the reply. "I've written them telling them all about it, and they are sending down some representatives to see a demonstration next month. "No," he added, as he saw the expression on my face, "I won't be persuaded to float a limited company and make a fortune out of it. I'm determined that the government shall have it, if they want it. However, I promise you that you shall be present at the demonstration, old chap."

Seeing from the expression on his face that his mind was completely made up, I turned the conversation back to the sphere itself.

"Have you made any more actual discoveries?" I asked.

Barton's face lit up again. "Yes, I have," he said, "a better way of controlling it. I made it quite by accident, too. I left one of the spheres, floating like a bubble over a sheet of aluminum, which had an electric current flowing through it, thinking, of course, that it would stay there until all its power was used up. Imagine, my surprise, then, when I found that a week later it had descended, had made a circular hole in the middle of the sheet, and was resting there. At first I thought that the current must have failed, but later investigations and experiments proved the truth of the matter. A prolonged current running through aluminum seems to have some effect on its molecular structure, just as an electric current running round a bit of iron will magnetize it. As a consequence, after a day or two, according to the strength of the current, the metal, instead of having a repulsive effect on the sphere, actually has an attractive one. This property, however, is lost the moment the current is switched off, and the metal, when the current is turned on again, regains its old repulsive effect. Of course, you can guess it did not take long for me to fix up an apparatus with two bars of aluminum—one with a continual current flowing through it, and one with a current that can be switched on and off, and thus gain absolute control of the ball's movements."

"It's marvelous! What a brain you must have," I cried in admiration. Barton's only reply was a sheepish grin.

So quickly had the time passed while he was explaining the various properties of the sphere, that I was

absolutely flabbergasted to hear the ringing of the bell which called all patients walking in the grounds to come in to bed.

"Good heavens, it can't be as late as all that!" I exclaimed.

"I'm afraid it is, though," my friend replied. "We shall have to say goodbye again."

"Then goodbye, old chap," I said, holding out my hand. "Wait a minute though. What about this demonstration? Where's it going to be held?"

"In three weeks in the grounds of my laboratory," he replied with a smile.

"Your laboratory?" I asked in amazement. "Whatever are you talking about?"

"Of course. Where did you think that I'd been working all this time? I had it rebuilt, about a mile further on than the other one. I thought it advisable to go a bit further into the country, in case I had an accident."

I passed my hand across my head. Although I had nearly recovered from my experience, so vividly did I remember the events that I could scarcely realize that they had happened about five months ago. "Of course, I didn't think you had it rebuilt," I said, rather foolishly.

Barton laughed. "Well, I'll see you in three weeks from today," he said. "You had better come about three o'clock. The government representatives are coming about four. You'll be out of this place in time to come. I've been speaking to your physician, and he's arranging for you to be released from here within a fortnight."

"Good," I replied, and with another handshake we parted.

THE next three weeks are among the longest that I have ever spent in my life. Even the release from the nursing home, and the return to my own home, I regarded as quite incidental. Always my imagination was wandering forward to the time of the demonstration.

At last, however, it arrived. The day was a typical mid-September one, fairly sunny, but tinged with the slightest trace of mist, and an almost imperceptible chill in the air that spoke of the rapidly approaching winter. I took little but a subconscious notice of the weather, however. This was the day for which I had lived the past three weeks—the day of my friend's triumph.

Situated in the country as it was, Barton's laboratory was a very difficult place to reach. It was nearly three hours' journey from my own home. In order to arrive there by the appointed time I was forced to have my lunch very early and to rush away immediately after. This was no hardship to me, however, so great was my excitement.

The railroad service to that out-of-way part of the country was never of the best, but that day the train seemed positively to crawl. Station after station we passed, and at each the wait seemed even more interminable than at the last. At times I almost felt that I could get out and walk more quickly.

However, all things must come to an end, even railroad journeys through the country, and at long last the station nearest the laboratory came in sight. I heaved a huge sigh of relief as the rusty-looking engine wheezed up to the soot-grimed platform, and jumping up I was out of the carriage, and almost out of the station, before the train finally groaned and rattled its way to a standstill.

Even now I was faced with a three-mile walk to the

site of the former laboratory, and Barton had said that the present one was a mile beyond that. The feeling that I was using my own legs to cover the distance, however, assuaged my impatience to a slight extent, and it was with a merry heart that I set out to cover the distance. It was well that I had no premonition of how the day was to end, or that cheerfulness would soon have changed to sorrow.

After some three-quarters of an hour's walking I arrived at the place where the discovery had been made, and where my friend and I had passed through our terrifying experience. Fortunately I was completely recovered by then, and could afford to gaze at the scene with a complacency that was almost impersonal.

It was interesting to note how quickly mother nature had covered up the ravages caused by the ball of death. Leaves had grown upon the trees, the creeping plants had already covered the bare patches of earth, and were even beginning to creep down the side of the pit itself. Many of the smaller things that had been uprooted and thrown into the hole had taken root again, and had covered the piles of debris with a rich green.

I have no doubt that any person who passed the place now would have very great difficulty in guessing what had happened.

I have not been there since, but I can imagine the sides of the pit worn away by the wind and the rain, and covered with successive growths, until nothing remains but a gently sloping hollow filled with green.

However, I had no time to linger if I intended to be in time for my appointment, and with a last look round I resumed my journey.

A quarter of an hour later I arrived at Barton's laboratory. It was a corrugated iron building, obviously thrown up only as a temporary shelter. A superficial glance gave an impression of carelessness and makeshifts, but a more careful look at the adjoining grounds soon dispelled this notion. The actual building might have been thrown up anyhow, but Barton's worst enemy could not have said that of the various scientific apparatus, arranged in order around it, that had been set up for the testing of the properties of the ball. It might be thought curious that the apparatus was in the open air, but that was a necessary precaution, considering the enormous and practically unknown power with which my friend was experimenting.

A warm welcome was awaiting me as soon as I had knocked on the ramshackle door. It was opened immediately, and Barton, smiling excitedly, stepped out and grasped my hand with both of his. "Come in, come in," he said excitedly, and pumping my arm up and down so enthusiastically that I almost began to fear that he would dislocate it, he dragged me inside.

The interior of the shack, which upon closer investigation I found was not the laboratory, but merely the living quarters, was as hurriedly put up as the exterior. Three old boxes formed the seats, and a board spread upon two others the table. An untidy pile of blankets in the corner showed how my companion spent his nights. The ceiling was simply the interior side of the corrugated roof, and the wooden walls had never felt a painter's brush.

Barton watched me look around the place and then grinned ruefully. "Afraid it's a bit rough and ready," he said, "but it's the best that I can do. The other accident was an expensive business, and that apparatus out there has run away with all my spare cash."

"Never mind," I said, "you'll be able to do better when you've sold your invention to the government. Meanwhile the apparatus is all that matters. I suppose you've got all you want of that."

"Not so much as I would like," was the frank reply, "but quite enough for this demonstration."

For some time we talked of general matters, seldom wandering far in our conversation from the sphere, however.

At last the time drew near for the government representatives to arrive. Strolling out into the open air, we gazed around for a sight of them. Sure enough, in the distance were five figures, slouching along in a weary manner. No doubt about who they were. Nobody, except Barton and me, came to this place from year's end to year's end.

A FEW minutes later they arrived at the edge of the grounds. We hurried forward to greet them. The usual compliments, introductions, and explanations were soon finished, and before very long we had them seated comfortably inside the hut, those that could not find boxes sitting on the table.

"Before I proceed with the demonstration," said my friend, "I would like to have a few words to say concerning my discoveries." The representatives settled themselves back in their seats, and Barton proceeded to relate all that had happened on and since that memorable day in his former laboratory, including the name of the salt used with his compound.

"Might I ask if anyone else knows of this?" asked one short, red-haired, fiery little man.

"I hope not," joined in another; a dark, taciturn-looking fellow.

Barton smiled. "Absolutely nobody except my friend here," he said.

Ten suspicious looking and narrow eyes turned towards me. "It would have been better if even he didn't know." The speaker this time was one of the younger ones, pale-blue-eyed, and fair to an extent that gave a rather repulsive appearance of hairlessness.

I could see that Barton was not taking to this crowd. "I trust my friend most implicitly," he snapped, almost angrily.

The smiles, and almost sneers, that this remark called forth, would no doubt have provoked him further, had I not stepped in as a peacemaker. "Perhaps we had better step outside and see the experiment," I suggested. "It's getting late, and no doubt these gentlemen intend to return to town tonight."

The representatives agreed with my remark, and the seven of us filed out into the grounds.

It would be to little purpose to describe Barton's demonstration in detail. The machine, by means of which he controlled the movements of the sphere, was a fairly simple construction, consisting principally of two bars of aluminum, and two small batteries; one connected so that a continuous flow of current passed through the top bar, and the other so that the current through the bottom bar could be switched on and off. Two dials, indicating the current allowed to flow through the wires, constituted the actual control.

When he combined the compound and the crystal to produce the sphere, I could not help feeling a little nervous, with memories of what had formerly occurred still in my mind. However, I need have had no fear. The sphere grew to a foot in diameter and then stopped.

The things done must have seemed miraculous to the representatives. Absolutely circular holes were made in steel plates in less than a second. Cylindrical holes were bored into the ground, and several trees were mowed down, like wheat before a reaper's sickle. However, all this was nothing to what I had seen before, and to tell the truth, before the sphere was finally used up, I was beginning to feel a trifle bored.

At last it was all over, and, as the first approach of evening began to tinge the air, we all returned to the corrugated iron shack.

"Well, gentlemen, what do you think of it?" asked Barton with a smile, as soon as we were all inside.

"Wonderful! Wonderful!" barked the fiery little redhead.

"Very good indeed, Mr. Barton," came oilily from the fattest and greasiest representative.

"We shall be able to do great things with it, shan't we?" was the laughing reply, for my friend had already forgotten his recent rancour, which indeed had only arisen in consequence of a doubt of my honesty.

"Very great things." In the failing light, the fair-haired member, who had made this remark, gave an even greater impression of hairlessness, which made the leer on his face horrible to look upon.

"Build canals, make mountain passes, tunnels, and a thousand and one things," Barton's visions were making him as excited as a child.

The representatives looked at each other out of the corner of their eyes. There was an uneasy stir among them.

"Of course, Mr. Barton," began the taciturn one, guardedly, "you naturally think of peaceful things, being yourself of a pacific nature, but there are greater things than that, to which it can be put."

"What do you mean?" Barton turned to him and snapped out the question in a thoroughly startled manner.

"The conquest of foreign nations. The glories of war. With it we can establish a world empire," came rapidly from the red-haired one.

"Do you mean that you would use my invention to kill your fellow-creatures?" Barton gasped incredulously.

"We are from the War Office. We are authorized to offer you a million for the use of it." The remark was from the fat and oily specimen, and it added the necessary spark to Barton's accumulating wrath.

"Do you offer me blood money?" he thundered, his eyes flashing fire. "Not for a million millions shall you have the use of my invention for that purpose. The glories of War! The glories of children made orphans, of women widowed, of living and breathing men reduced to blood-soaked pulp. Do you think that the greatest country is the one who shatters most thoroughly her sister civilizations? No! I throw it in your teeth for the most cursed lie that ever the race of man was fool enough to listen to. Get out! Neither you nor anyone else shall have the fruits of my invention. I will destroy all my records for the last six months. I thought that man was far enough civilized to use this sharp tool to carve out for himself a greater destiny. I see that I was wrong. He is nothing but a foolish child, who will cut himself—perhaps fatally if it is given to him. Go, I tell you. He shall not have it. It is going to be destroyed."

The complacency of the representatives remained entirely undisturbed during the whole of this tirade. In-

deed a rather contemptuous smirk was apparent on some of their faces.

"You shouldn't get so excited, my dear Mr. Barton," murmured the fat person. "We will pay you well for any ideals that you have to let go, I assure you."

MY friend cast him a contemptuous glance that would have withered anyone that had not the hide of a rhinoceros.

He of the taciturn face, who was seemingly in charge of them, frowned his underling into silence, and then turned again to Barton. "My dear sir," he said smoothly, "of course, pacifism is a high ideal, but it is impractical, I can assure you. Entirely impractical under the present state of things. Meanwhile, it is up to us to make the best of matters as they are. In other words, as we cannot stop wars, we must win them."

Barton turned impatiently from his sophistries, and then the little red-haired man chimed in. "Don't be a fool," he snapped, "you've told us how to make the stuff already. If you don't accept our price, we shall simply make it, and leave you to prosecute us for infringement of patent."

"Come now," said the leader, "we don't want to have to play a trick like that on you. Accept the money. We must have the stuff, for the good of our country."

"For the good of your Mammon-mad masters, you mean," replied my friend, with something that was almost a sob. "The country has been a fool enough to allow their long purses to lever you into power, and bitterly is it going to pay for it."

"Do you accept our terms?" was the unmoved reply.

"It seems that I have no choice."

On hearing these words I started forward with a cry of protest. "Let them make it, then prosecute them," I cried. Barton shook his head. "Hopeless," he murmured. "No, I've got to use this sphere to kill men," and as he uttered the words, his face grew haggard.

"You will sign the necessary documents now," came the inexorable voice of the leader.

"I don't want my best friend to see me do that."

I thought that he was about to break down completely.

"Goodbye, old man," he held out his hand, "I would rather that you went now."

For a moment I hesitated, then I felt that it would be as well to accede to his request. For an idealist like Barton the knowledge that he was giving into the hands of these men such a terrible weapon, for the express purpose of using it for the destruction of human beings, must be a mental torture of the most horrible intensity. It was quite understandable that he should not wish to have me by him.

"Goodbye," I gripped his hand, and with a lump in my throat I turned and left the room.

It was with senses almost numbed with horror that I stumbled out of the shack and across the grounds, on my way back to the station. Ever before my mind floated horrible pictures. Happy homes, loving mothers and laughing children. Then would come the ball, leaving in their place but a blank nothingness. Works of art, glorious architecture, the concrete expression of the beauty that is in men's souls, built up by lifetime after lifetime of willing labor. Again the ball, and again the same blank nothingness.

Wearily I trudged along. The walk back to the station seemed endless. A bitter contrast this, to the

eager and lighthearted manner in which I had come.

The pit, caused by the first experiment with the Ball of Death, came into sight, half covered with green, and half gaping barely, as if to remind me of the terrible destructive power that had just been loosed on the world.

For a moment I stood gazing at it, scarcely knowing what I did or thought. Here it was that my terrifying experience had upset the balance of my mind, on that much too eventful day.

I—Good God! What was that?

I was going mad again!

My mind, unhinged by the sight of the pit, was causing me to hear once more the familiar whine of a growing sphere!

No! It was no hallucination! From behind me the noise was coming, growing every moment louder!

I turned around. Behind me the country sloped gently downwards in the direction of the laboratory. The shack itself was hidden by a thick growth of trees and bushes, and for a few seconds I could see nothing.

Then the sphere leaped into sight, advancing its confines towards me with the speed of an express train. I screamed aloud with the horror of it! On it came. Blue already, rapidly advancing into indigo. Useless to run. Useless to do anything but wait for annihilation.

It was within a quarter of a mile of me—three hundred yards—two hundred—one hundred. I could feel the slight breeze caused by its repulsion of the air fanning my face. Fifty yards—twenty-five—ten—

I closed my eyes, sweat pouring from every pore of me. Only a few seconds now!

Suddenly I opened my eyes wide. The whine had ceased!

Almost to my very feet yawned an immeasurably deep pit, but the edge advanced no nearer. The sphere had reached the invisible stage, and was now hanging poised, before it finished up all its power.

For a moment I was tempted to stop and show my joy at my escape, but fortunately sanity returned in time. I gave a quick glance round. Over to the right I saw a steep bank of green that might afford some shelter. One leap brought me to it and down on my face I went.

Scarcely had I done so, when the sphere gave way, and a tornado commenced. For five long minutes it lasted. Five minutes of flying stones, leaves, and branches. Five minutes of breathless clinging to the ground, expecting every second to be swept away.

Then it was all over, and I was left to crawl from beneath the pile of debris that was scattered over me, unharmed, except for a few bruises.

It would be of little interest to the general public to learn how I made my way back to my home. Let it suffice for me to say that I did so with perfect safety, despite some curious stares and remarks from my fellow travelers at my tattered appearance.

All that remains to tell is how the last sphere came to be made, and that will always remain a matter of speculation. Some will probably put forward the theory that the whole thing was an accident. But I can never agree with that. I remember far too vividly the expression on Barton's face when he said that he must use the sphere to kill men. I am convinced that the men he had in mind were the delegates from the War Office, although neither they nor I suspected it at the time.

Great indeed was the sacrifice he made for his fellow men and proud I am to have called him friend.

THE END.

DISCUSSIONS

In this department we shall discuss, every month, topics of interest to readers. The editors invite correspondence on all subjects directly or indirectly related to the stories appearing in this magazine. In case a special personal answer is required, a nominal fee of 25c to cover time and postage is required.

BRICKBATS AND FLOWERS COMBINED. TIME TRAVEL AND ITS INCONSISTENCIES

Editor, AMAZING STORIES:

I think you may be pleased, or at least interested, to receive a word or two of praise and appreciation of your "out of the rut" magazine, from our English readers. It is certainly "the goods" and since becoming a reader I have been surprised by the amount of education and entertainment one can obtain from the scientific facts and theories crammed into one copy. Perhaps therein lies the secret of your success. The stories are nearly all written by an author of proved ability in his own sphere. However, having given you your well deserved mead of praise, I am offering a little criticism, which I infer you, as a long suffering editor, simply reel in, tearing your hair if you don't get any, and frequently tearing it when you do. I understand also, that to be of any value, it should be constructive, not destructive.

Taking two stories from the copy I am at present reading, one is simply puerile, the other is a really good and amazing story. I am referring to "The Time Accelerator" and "The Black Hand." The last mentioned is a well written and certainly amazing story of a wonderful surgical operation. I maintain that a story need not always be about interplanetary machines or wonderful rays to come into the category of "Amazing." I should like to see more stories that do not stretch the limits of possibility to a painful degree. Mr. Editor, you want to be firm with your authors. Let them understand that the vast majority of your world-wide readers by the very fact of their being regular readers of AMAZING STORIES, a magazine which endeavors to elevate as well as amuse, should stamp them as being of fairly good intelligence and able more or less to shape the dim clouds of the near future.

The story I mentioned, viz., "The Time Accelerator," is ridiculous and only fit for kids. To take only a few points from it, the inventor stays his journey when the last man is alive, a highly improbable coincidence, taking into account the thousands of years he has to choose from. Why was only one machine built, although apparently highly successful? Why did not the last man take it from the museum where it had lain 500,000 years? And if he had decided to take it from the museum just as the inventor started on his return journey, how on earth could two men operate two monoplanes independently of each other, which is really only one? I could go on for a long time, but it is futile and serves no purpose. The whole story is so absurd and full of inconsistencies; just imagine a 1,000,000 years old monoplane being made to function after an afternoon's tinkering and with the aid of a couple of metal bands. But I expect you have been roasted before over this story, so I must not be too hard on you.

I honestly appreciate your work and think most of the stories really A1. To my mind, however, the most interesting thing is the little monograph on scientific facts at the front. I always read that first and feel that it is too short. But I think I have wasted enough of your time.

Harry Barnes,
22 Lessness Park,
Belvedere, Kent, England.

(One of the pleasant features encountered by the editors in conducting the Discussions Columns is the reception of letters from foreign countries. We are favored with very delightful letters from England and her distant colonies. AMAZING STORIES is building up for itself a distinguished clientele across the waters of the Atlantic and of the Pacific oceans, for it thinks nothing of taking a trip to India or New Zealand. Now for your two stories, "The Time Accelerator" has not been severely criticized and for some reason we have correspondents who do not like surgical stories. Above all an editor must study his subscribers'



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and readers' wishes. Often a story which pleases him greatly will meet a very poor reception—in other words, in a magazine like AMAZING STORIES it is the readers who are to be pleased and not the editor. You speak of "The Time Accelerator" being only fit for kids, which is the most difficult kind of writing, the rarest to be really successful is exactly this writing for kids. We thank you for your letter and appreciate it thoroughly and shall hope for more communications from you.—EDITOR.)

A VERY GOOD NATURED SCOLDING LETTER FROM ONE WHO "CONTINUES TO READ AMAZING STORIES"

Editor, AMAZING STORIES:

Irritated beyond measure by the platitudinous remarks of various readers to the effect that few magazines present as high an artistic display as AMAZING STORIES, I feel it my duty to state, emphatically and thunderously, that such opinions are not only erroneous but absolutely misleading. Either the aesthetic perception of the majority of your readers possesses an intelligent quotient equal to the African Anthropoloid, or else they are all victims of mass hypnotism. For, when reader after reader persistently declares that the illustrations are *improving*, when in reality they are actually *deteriorating*, there is a serious tendency to become singularly confused. The longer the magazine exists, it would seem, the more amateurish become the illustrations. To prove this contention, you may officially place me on record as stating: "I defy any man, supposed to possess human intelligence, to compare the cover of the March, 1931, issue of AMAZING STORIES with the first issue of the same magazine, without informing me there has been 100 per cent. deterioration."

However, since a magazine can hardly be judged by the vagaries of its artists, there is presentable enough evidence to arrive at the conclusion that today AMAZING STORIES and Fairy Tales are practically synonymous. Again I am stating a fact; since a comparison between the earlier issues of AMAZING STORIES and those now published uncovers several amazing facts. In the first place, between "The Moon Pool," published in 1927, and "Through the Veil," published in 1930, there is only the galactic difference that separates literature from something which can be termed nothing more nor less than—gibberish! So inane, tedious and plotless are some of the stories, such as "The Act of Retipuj," "Rhythm," and "Reaping the Whirlwind," that to continue reading your periodical requires a supernatural degree of patience. In many of your stories there is too great a tendency toward *exposition*, whole chapters being devoted to the explanation of some scientific theory; while in the other half of the stories sentimental utterings between the heroine and hero border on the laughable. For any reason at all, and often for no reason, the heroine is thrust into the story, to continue a stereotyped plan, until the inevitable conclusion where the forces of good overcome the forces of evil.

About the only redeeming features of your authors exist in L. A. Eschbach, whose "Valley of Titans" transcended the bromidic paths of imagination; and Jack Williamson, who, in "The Green Girl" (but not in "The Prince of Space") attained superb powers of expression.

Yet—in spite of all my objections to your magazine, your artists, your binding, and your attitude; in spite of the abominable practise to which you have become addicted, that of praising each story to the skies—in spite of this, I say, were I in your position I could do no better.

And, therefore—I continue to read AMAZING STORIES!

Bernard J. Kenton,
416 Frankfort Ave.,
Cleveland, Ohio.

(It is a very expensive luxury to endeavor to improve humanity. We are vain enough to feel, however, that we may be doing a little of that work in keeping up the standard of AMAZING STORIES. We are most anxious to please our readers and we get very favorable comments on the illustrations you comment on. We have placed the cover pages of the two AMAZING STORIES issues that you specify, side by side and somehow we fail to see any deterioration. On the contrary, we have much reason to believe that the March, 1931, magazine was far superior to the first issue of the magazine. Do you think it fair to compare a long, unusual story of one year with very short stories? But we thank you for your concluding paragraphs.—EDITOR.)

THE UNHAPPY EDITOR TRIES TO PLEASE THE MAJORITY; A LETTER FROM SCOTLAND

Editor, AMAZING STORIES:

Judging by the letters printed in the "Discussions" columns, writing to the Editor of AMAZING STORIES is as effective as telling a hair-raising story to a bald-headed man. It is simply a waste of time. Well, listen to this waster.

In the March issue, I find that four readers object to the artist Muller. This surprises me greatly as I consider the illustration of "Anachronism" novel and clever. As you say, Muller can draw. Please consider Mr. Derluphere's appeal for a cover design by this original artist.

By far the worst story you have yet printed (I hope the "yet" will not be justified), is the "Act of Retipuj." Sunev, Threa (Venus, Earth, etc.) "Oh, Mr. Garfinkel, how clever!"

Really, Mr. Editor, to think that you, who are always saying, "If you could see the pile of good (?) original (?) stories we have on hand" should print such a "duff" story! Oh, well, let it go.

I'm glad to see that George McLociard is back again. While I'm at it, might I ask if there is any chance of the following authors "staging a come back"? Marius, P. F. Nowlan, R. E. Lawrence, E. L. Rementer, J. Schlossel, J. R. Ullrich.

Also: 1. Why do your artists depict space-ships and airplanes rising or descending at alarming angles? (Alliteration unintended.)

2. Has anything been done about the Scientific Library?

As a matter of interest, I may state that the record for hanging head downwards is one hour and fifty-seven minutes.

I believe that AMAZING STORIES was the pioneer of scientific magazines. Now that other magazines have invaded the land and made scientific fiction as "caviare to the general," what can we call our magazine? From the size, color and texture of A. S., I should say it is the "Aristocrat of Science-Fiction Magazines."

L. Craney, Jr.,
190 Fordneuk Street,
Glasgow, Scotland.

(We agree with you in your judgment about the artist Muller, but like the politicians the Editor has to please the majority. This same idea of pleasing the majority has to influence our views as to how good a story is. Our readers may like a story which we may not care for at all. As to the angle of "zooming," in view of the fact that our stories generally relate to the future, our artists, we feel are justified in assuming a pretty stiff angle. The present gyrocopter can rise with a very short run or take-off, and can descend almost vertically, slower than a parachute falls. Nothing has yet been done about the library which you refer to.—EDITOR.)

A LETTER COMPLIMENTING DR. SMITH FOR THE SKYLARK STORIES

Editor, AMAZING STORIES:

I have just finished reading, for the tenth time, the new story by Edward E. Smith, Ph. D., "Skylark Three," which is the sequel to his other story, "The Skylark of Space," which ran in your magazine some time ago.

I am somewhat of a critic of scientific fiction and greatly dislike the attempts at such stories to be found in most other magazines. I have never found a real mistake in your magazine, which accounts for why I like it better than I like the others.

I think most other readers will agree with me about your magazine and I am sure that they will agree with me again when I say that you could render a real service to your readers by getting Mr. Smith to write more stories of the adventures of Seaton and Crane and the rest of the bunch. A story which has been as well started and handled as this one has been should have unlimited possibilities.

These stories I feel sure are the best ever published in your magazine, being even better than "The Moon Pool," which ran some time ago.

W. O. Borcherdt, Jr.,
50 Dartmouth Road,
Mountain Lakes, N. J.

(There is a prospect of our soon having another story by Dr. Smith. He has not written much of the type of stories we now publish and we were highly pleased that the Skylark stories were generally found to be so interesting. Dr. Smith will appreciate your compliment in saying his story surpassed "The Moon Pool," which certainly was a most popular story.—EDITOR.)

In the Realm of Books

The Face in the Abyss

"The Face in the Abyss," by A. Merritt.
Published by Horace Liveright, New
York City. \$2.00.

COMPARED to the marvelous imagination of Merritt, the efforts of the so-called masters of fantastic fiction, Verne and Wells, seem very feeble indeed. Not only is his imagination well founded upon thorough knowledge of folk-lore, medieval and ancient sorcery and witchcraft, mythology and archeology, but he knows the wizardry of words, and when Merritt describes or pictures anything, it becomes plausible and real at once. The book is on par with his earlier stories, "The Metal Monster" and "The Moon Pool" and it is loosely joined to the latter.

As in "The Moon Pool" there are frequent allusions to an incredibly old race of reptilians in whom intelligence was vested and who reached a marvelous height of superscience and superknowledge long before our ancestors started on the road leading to man. As Merritt has it, these reptilian intelligences guided humanity during its uphill climb until a great pre-historic race peopled the Earth. Remnants of this ancient race we meet in Merritt's new book, also the sole survivor of the still older reptilian race, in the form of Adana, the Snake Mother.

The story appeared serially in two parts and has been shortened somewhat as a book, but fortunately, the shortening has not spoiled it. The hero, Graydon, with two ruffians, decides to follow a clew which might lead to an enormous buried treasure. They reach a mysteriously guarded valley, where he rescues Suarra from the clutches of his fellow adventurers.

He alone wins the protection of Adana, the Snake Mother, who is half human, half serpent and fascinatingly lovely. She has led the old race to this place, taught them the science of the serpent people and made them immortal. The two ruffians meet their death, when being led into the cave where Nimir, the Lord of Darkness, is imprisoned behind a stone face, they succumb to their greed and are destroyed by electronic forces. The coming of Graydon precipitates the fight for supremacy between Adana and Nimir and his allies, the vicious Lantler, commander of the dinosaurs and the Urd, the hideous lizard-men. On Adana's side are lined up Tyddo, Malik, Huon, chief of the outlaws and Kon, leader of the spidermen, and the invisible flying serpents. Adana recovers certain machines from the cave of the lost Wisdom, which is then destroyed by her superscience. But Adana has not been strong enough to prevent Nimir from obtaining also a supply of scientific weapons, but in the ensuing battle, Adana emerges triumphantly and Nimir's forces are utterly routed and Nimir, the Lord

of Evil, is destroyed. So Graydon wins Suarra. With the request to be awakened with the arrival of the first-born, the Snake Mother retires.

There is no possibility of comparing this book or any of Merritt's books to others, because they are unique in English literature and the only fault I have to find with Mr. Merritt is that he does not write oftener.—C. A. Brandt.

The Call of the Stars

"Der Ruf der Sterne," (The Call of the Stars), by Erich Dolezehl. Published by Krystall Verlag, Berlin, Germany. \$2.00.

IT seems that the minds of all European authors are sold on the rocket principle, as the only possible means of eventual space travel. In this book, the hero, who is unfortunately named "Kuehl" which at times conflicts and clashes peculiarly with the text, has constructed a vehicle driven by a newly discovered ultra-powerful explosive by means of which he intends to reach the moon. His backer is a rich newspaper owner who sends his representative along to keep in touch with the office and to transmit all news via a newly perfected radio. Just before the start, the news arrives that a Japanese Engineer has already started for the moon. Nevertheless the start is made and then we read about the familiar (to all of us) phenomena of what happens in space.

By accident, it is discovered that the Japanese are plotting to capture the Martian emperor and to gain possession of the planet for the greater glory of Nippon. During the ceremonies of departure, the Japanese almost carry out their design and Octavia, Kuehl's teacher, kills the emperor herself in order to rid Mars of the unwelcome visitors. The Japanese party departs in haste, Octavia with them. Radio messages reveal later that she has managed to wreck the entire party and that the Japanese rocket is falling into the depth of space.

The German explorers escape in the confusion engendered through the assassination of the ruler and find refuge in underground passages, where dwell the original Martians—insect-like, semi-intelligent creatures, of kindly disposition, however.

After wandering about for months, they finally emerge into a large hall, in which their space rocket has been stored. They manage to elude the guards, gain possession of the rocket, and finally land back on Earth.

"Der Ruf der Sterne" is quite an entertaining yarn. The technical and theoretical aspect of the story is well treated as is usual in German stories, but as an interplanetary tale, it is far behind those of our own authors—Smith and Campbell.

—C. A. Brandt.



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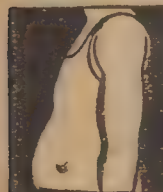
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A VIVID LETTER FROM A FARMER BOY IN IOWA

Editor, AMAZING STORIES:

Several times I have been tempted to write you, but I hadn't the ambition necessary to carry my thought to paper. I've been buying "our" magazine monthly for over a year, but have just recently been able to get the Quarterly. Best on the market as far as I have been able to find. Though I think the Quarterly could be improved upon. Without advertisements, I'm lost in it.

That "Islands of Space," by John W. Campbell, Jr., I consider a masterpiece, though I think the author is slightly inconsistent in that in the review of the war with the inhabitants of the Black Star, there is no mention of the people on the moons of Jupiter, as mentioned at the end of "Solarite." Incidentally, I have not read "The Black Star Passes," which I believe was in the Fall Quarterly, which I was unable to get.

McLociard's "Television Hill" was a darn good story. It was specially interesting to me inasmuch as I have been in the locality of the Television Hill on Rock River several times.

Capt. Meek's "Drums of Tapajos" is the best story that I've read in A. S. Please have more of the "Dr. Bird" stories.

Mr. Addison in the April number was partially right, but I believe he exaggerated somewhat, according to Mr. Benedict in June. I like the latter's ideas about the covers. Put 'em in any color, some people probably like green, though I detest it. Blue is 100 per cent with me.

In the August issue the illustrations for "Sky-lark Three" (inside) has three female figures. Is that right when there were only two women in the story? Don't look like mirrors to me either.

Another thing. Hamilton's "Universe Wreckers." If that force ray used for pushing the space flier was of so great power, why wouldn't it force a hole in the ground when it took off? If any person should wander into it, it would be too bad.

Personally, I do not think time traveling practical. As Mr. Connell of Australia puts it, the hero accelerates himself and finds the earth and everything else waiting for him. I can't see time as anything but multiples of the revolution of the earth upon its axis, or divisions, as the case may be. As the solar system moves through space, a man can't accelerate or decelerate himself to some other year, or to where the earth was at that time or will be at a future time, probably millions of miles from where the earth was when this man started on his journey. This probably sounds crazy to you; it certainly does to me! I'm willing to be shown, but just now it merely makes good reading to me.

About reprints. One of those was what got me to read A. S. I bought the May, 1929 (whatta memory!) issue on account of Verne's "English at the North Pole." I was unable to get any other copies at the newsstand until March, 1930. Then, "The Green Girl" converted me to become a regular reader.

The April, 1931, was a pip. I was impatient when I couldn't get it the first of March, so when I saw it on the news rack I made a grab for it. I was in the act of digging deep when the clerk asked me what I wanted two copies for. Wow! for a bit I glared at the small size of its third dimension and thought of the business depressions, starvation among authors and other things. I opened it to the table of contents and the light burst. Bigger and better. Hang on to that pair Schachner & Zagat. "The Menace from Andromeda" had a worn plot, so have all of 'em. They made a darn good story.

I won't tell you who your best authors are for you know better about that than I do. I'll yield to age and experience. I saw a picture of Dr. Sloane recently. I can't raise whiskers very well, age 17, year out of high school. (I'd certainly have taken a greater interest in Physics and Biology in H. S. if I'd been reading AMAZING STORIES at that time.) No offense meant in above. To return, the authors I like to see in the magazine are: Keller, Breuer, Smith, Campbell, Meek, Starzl, Colblentz, Verrill, Vincent, McLociard, Peters—all of 'em!

For the love of Pete, let's have more Starzl. Only two in the last year. He's one of the few who use the short story in writing; Keller and Breuer are two others who do. Am glad to see several straight issues with Dr. Keller. Again, I'm glad to see Murray Leinster in the

June issue of which I have read nothing but the "Discussions," as yet.

I would like to have you reprint some of the older science fiction in booklets. How about it? Verne, Wells, Merritt, etc. One of your arguments against reprints is that these may be had in city libraries. How's a poor, ignorant, farmer boy like myself gonna get to one of them things?

Ronald Miller,
South English, Iowa.

(This is the second letter from Iowa that we have recently received and both letters we think do the state credit. Of course, no one pretends or believes that time-traveling is possible now, but it certainly leads to a development of ideas. Time is measured by various phenomena, the basis of time for ordinary purposes being the terrestrial motions around the sun, but the earth's motion is only a measure of time; it is not time itself. The editor enjoys commenting on the letters from correspondents; we publish them whether they throw wreaths of flowers or brickbats; perhaps the brickbats are a good tonic. We are decidedly interested in your list of favorite authors as your views coincide with ours. But we are always on the lookout for new authors, for every now and then an excellent story will come to us from someone who has never written for us before.—EDITOR.)

AMAZING STORIES IN THE SCHOOL. A MOST INTERESTING LETTER FROM A YOUNG READER

Editor, AMAZING STORIES:

I have read AMAZING STORIES since the September issue, 1930, but have sent away for, and received the January, 1930 issue. I think that the "Pioneers of Science-Fiction" is a good motto, because it is true. Although AMAZING STORIES was the first, four companies now publish science-fiction magazines. I see that a new one has just come out. Well, the more the merrier. If I could only afford one magazine, it would surely be AMAZING STORIES. I am going to try to found a "science-fiction" club in school, as every Wednesday we are allowed one hour for club. I now am the manager of our school magazine, the "Hamiltonian" in which I recently had an article published called, "Odd Facts in Science" in the Science Department. Many people asked me, including teachers, "Where did you learn it?" I did not hesitate to answer "In Science-Fiction magazines." I highly recommend AMAZING STORIES to all my friends, but sorry to say, all my friends don't enjoy science-fiction. Of course, many people say it's impossible for any of the things mentioned in the stories to come true, but is it? It was impossible for Columbus to cross the ocean, too, until he did.

Now for the criticisms: Your best authors (in my opinion) are: H. G. Wells, Breuer, Meek, Keller, Cummings, Campbell, Vincent, Smith, Hansen, Hamilton and Repp.

I am exceedingly fond of time-travel; dimension translation; fourth dimension and atomic stories dealing with the future.

My favorite stories are: "Beyond the Green Prism"; "The Hungry Guinea Pig"; "Fourth Dimensional Space Penetrator"; "The Translation of John Forsythe" (about the best of its kind); "The Prince of Liars"; "The Man Who Saw the Future" (which I think could stand a sequel); "Anachronism"; "Atomic Fire"; "Too Many Boards" (this was very realistic); "The Cerebral Library" and "Beings of the Boundless Blue."

Other magazines have too much interplanetary stuff to suit me.

No matter how much the critics denounce the stories, nothing can be said about the editorials. I get as much instruction out of them as I do out of the stories.

If you put one plant in a fertile field, it won't take long for the field to be covered with them. That's how it is with Science-Fiction. Before long the newsstands will be stocked with dozens of Science-Fiction magazines. Then, when everybody is reading them, won't the present readers of Scientifiction be proud to say, "I read the first Scientifiction magazine ever published."

Science-Fiction reminds me of chemicals. Some one was experimenting. By accident (or on purpose), Science and Fiction met, and what a reaction!! (etc.).

Though I am only fourteen years old, Science-Fiction is my favorite dish!

Charles D. Hornig,
213 Orchard Street,
Elizabeth, New Jersey.

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OLD WAY

NEW WAY

(Your letter is interesting because your list of favorite subjects comprises topics which have been criticized unfavorably in our Discussions Columns by other correspondents. We are particularly glad that you like the class of stories you name because we feel that some of them are extremely good and lead to speculations about the future which are of the most interesting type. Interplanetary stories are desired by so many of our readers that for their sake we published a special Interplanetary Story Quarterly. So, imagine the task which faces the staff of this magazine to supply stories for all classes of readers. There is one thing that is brought out in our Discussions Columns, and that is the wonderfully good letters that are written by our correspondents.—EDITOR.)

A CRITICISING LETTER FROM THE SECRETARY OF THE INTERNATIONAL SCIENTIFIC ASSOCIATION

Being somewhat interested in the lost continent of Atlantis, P. Schuyler Miller's story "Through the Vibrations" prompts this epistle. In the first place, if matter is made up of waves, it is not necessary to grant the existence of an ether; the ether being necessary only when matter is assumed to be other than waves.

Jack had no need to fear refraction, according to the theory of Doc. His vibrations would be independent of his surroundings. He would no more be refracted in other vibratory fields than those of us in this set of vibrations that we call the universe. In other words, he would retain his earthly relation of his component atoms to the vibrations of light, electricity, etc. I hope I have made myself clear, in my interpretation of Doc's theory.

This phrase "materialize in the other plane," used frequently in varied forms, seems quite inconsistent with the well-known law of Newton's: Two things can not occupy the same space at the same time. It is my opinion that if some solid or crystalline object were occupying the space destined for the broadcast vibrations' resting place in another plane of vibrations, then they would not materialize there. Furthermore, since the transition is gradual, any object in the way of the vibrations that were Jack, would deflect, or reflect him, and in exactly the same manner as so many billiard balls, inasmuch as he would be of the same (call it) consistency, when he passed through each succeeding vibratory field, as that of the field in question.

Enough of that, however.

The highly advanced civilization of Atlantis, as described in Mr. Miller's story, surprises me more than it convinces me. I doubt if Atlantis ever reached an intellectual stage even remotely resembling ours. Could not Mr. Miller have used some mythical land, or one of his own? There is too big a probability of Atlantis' actual existence to be over-liberal in describing its culture as Mr. Miller did.

One of the best written stories ever published in A. S. was "The Purple Plague." A little more science in it and it would have been the ideal scientific story. On the other hand, J. W. Campbell's works are stocked with enough science to supply any number of stories. J. W. should scatter his explanations throughout the story, instead of giving us all the scientific dope first. The reader has a tendency to go to sleep if he gets highly involved theories in rapid succession.

And for the love of Mike, let the horrible paradox rest for a while. Ever since Cloukey's stories of the Paradox series, he has been constantly mimicked by many authors on the Time Problem.

Blood and thunder are about due for a fall too, I think. This theme is also overworked. What a fortunate age we are living in! It seems that all of our progeny are to be afflicted with large and ferocious bugs, bacteria of murderous habits, scientific misuses of all kinds, as well as with countless invasions from space. Why not light, pleasing, stories once in a while? Or connect the slaughter to one locality. Captain Meek's "Drums of Tapajos" is an example of an excellent story without terrorism and company.

Many authors seem to lose sight of the fact that AMAZING STORIES is not a history book, nor a sociological magazine. Why is valuable space wasted on lengthy histories of mythical nations out in space? Why is the bulk of some stories, description of Utopian, or reverse, civilizations? Can't we have a hero, just one, a villain and so forth in scientific fiction, just as in any other

form of literature? The human element is terribly slighted in most science fiction. There are some, however, who do this up well, notably Starzl and Williamson. Eshbach does up human (?) interest fine in his stories from out of space. The question mark concerns the status of his mythical heroes or villains.

Readers of AMAZING STORIES are probably well acquainted with *The International Scientific Association*, so I shall not take up valuable space describing it now. Those interested can obtain information regarding membership therein from the undersigned.

I have thrown a number of brickbats already, but still have another one which is final and rounds out the list. Your covers do not suit me. Now that you know that, you can take it or leave it. Really, though, several of the depicted bugs were so ferocious as to bite me severely if I happened to put my finger in their various eyes, or if I did not pick up the magazine gently.

Outside of that, AMAZING STORIES is fine and dandy.

Paul J. McDermott,
8834 S. Michigan Ave.,
Chicago, Illinois

(In a sense we feel honored by the attention which Mr. McDermott has given to our efforts, although they do not seem to please him in their results. Our readers have no idea of the difficulty of getting good stories which contain a proper amount of science. Some of the most admired stories which we have printed, which received a high degree of praise from our readers, contain very little science. But as this magazine was supposed to be devoted to stories based on science we are restricted in our choice and the way to get a larger amount of stories is to permit considerable latitude in the treatment of the topics. We not only are ignorant of the degree of civilization attained in Atlantis, but we do not know whether the continent ever existed. There is little need to curb the writers' imagination by saying that only a certain degree of civilization shall be depicted as existing in "mythical" Atlantis. You cite Captain Meek's "Drums of Tapajos" as an example of the story without terrorism and company. It seems to us that there was plenty of terrorism in it. As regards the bugs on the cover we accept your remarks as the highest praise; we can only wonder how much of our magazine is what you call "Outside of that."—EDITOR.)

SOME OBSERVATIONS FROM A READER JUST ENTERING HIS TEENS

Editor, AMAZING STORIES:

I am thirteen years old and have been reading scientific fiction for two years and the best one I have struck and ever will strike, unless it deteriorates, is, of course AMAZING STORIES. It has enough stories to keep my thought-tank working. I prefer the Interplanetary type of story and I hate the different dimensional type of story. I think I would like them also if they had a little bit of action in them. The book or magazine which you issue says on the binding Scientific fiction not scientific facts. I wonder if you will pay any attention to me and my ideas? Let's have a few more good stories by good authors such as Dr. Smith, Ph.D., H. G. Wells, Capt. S. P. Meek, Miles J. Breuer, Aladra Septima, and if the author is just starting and writes an excellent story, bring it in. I would rather have five good stories by amateurs than 50 rotten stories by the best authors.

Some of the best stories you have printed are:

The Skylark of Space—and its sequel, The Metal Horde, Vandals From the Moon, The Universe Wreckers, The Troglodytes, Piracy Preferred, Solarite, The Black Star Passes.

Kenneth Burn,
San Pedro,
California.

(When one passes his twelfth year and until he becomes twenty he is said to be in his teens and we get numbers of letters from correspondents who are in that most interesting period of life which almost rivals in interest the years after another classic period, the three-score and tenth year. In this you exchange the excitement and interest of your young life for peace. Some of our stories have more than a little bit of action in them. You may be sure that we are on the watch for good work from authors new to our columns. You would be surprised to know how relentlessly we turn down stories by good authors, which seem not to be adapted for our columns.—EDITOR.)

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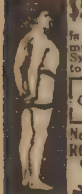
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PLEASE THE SERIOUS READER. "TELEVISION HILL" CRITICIZED

Editor, AMAZING STORIES:

I am writing to you because I feel that your attention should be called to several facts. In the first place, I don't think your choice of covers is as good as it might be. In one of your answers to a letter printed in the July issue of A. S. you stated that you wanted to please the serious reader with your covers, but you also wanted to attract the attention of the people that didn't know A. S. I appreciate this, but I think you could accomplish this better than you do. For example: take the cover on the July issue itself. You have an illustration from "The Metal Monster" on the cover. Why did you take that? It is a good picture, to be sure; but it could have been better. I think the illustration opposite the first page of "Space-hounds of IPC" would have been much better. What better picture than that to attract attention or please the reader? Or, if you don't like that, the front illustration from "The Jameson Satellite." That was good. Enough of that. By the way, I liked "The Jameson Satellite" very much.

I believe that "Television Hill" had its good points, but, Oh, the ending. The author made a fool of himself in my opinion. Near the first of it he remarked that all of the modern scientific fiction had the same ending. The hero inventing a wonderful but terrible machine capable of ruining the world and then destroying it in time to save the world and marrying the old scientist's beautiful daughter. Then the author used that same plot with a small variation. However, I liked one of his other stories very much. It was titled "Terror of the Streets."

I am a comparatively new reader, having read about ten copies. I think on the whole AMAZING STORIES is the best magazine I have ever read. I like particularly Wesso and Morey. I think they have remarkable ability for drawing pictures to illustrate the type of story you have. I wish you had more like them.

Peter H. Holme, Jr.,
1750 Forrest St.,
Denver, Colorado.

(We accept your criticisms with our usual patience and it would be strange if we did not. What you say in the last paragraph of your letter is very flattering. You are perfectly right about Wesso and Morey, although many of our readers criticize them unfavorably and, as we think, very unjustly. You must realize that different readers would select different subjects for the covers, but we think we are getting excellent work from our artists. "Television Hill" was a good story, although it has received considerable criticism from our readers. This author is certainly an excellent writer. The criticism of "Television Hill" goes to prove that it possesses merit, as otherwise there would be little to say about it.—EDITOR.)

AN INTERESTING LETTER FROM BRAZIL. UNIFORMITY IN STORIES ABOUT THE MOON ASKED FOR.

Editor, AMAZING STORIES:

AMAZING STORIES "gets" me, and when once I commence a story, I seem to live in it along with the characters.

My favorite stories are Interplanetary Stories, and I see by reading the Discussions Columns that a large majority of readers also have these as their favorite type of story. I say along with all these others, give us more of this kind. Next to Interplanetary Stories I like stories of the future, but by chance I happened to get hold of an old copy of the magazine which had a part of that story of Edgar Rice Burroughs in it "The Land That Time Forgot." I finished the instalment and sent to England for a copy of the whole story. Why don't we get more stories by E. R. Burroughs, and H. G. Wells? I know I am only repeating what other readers have said many times before, but I don't think it can be said too often. Practically, I don't know a thing about science, but I know quite a lot theoretically, and I read all I can about things scientific.

Now, there's something I'd like to know: that story in the Spring Edition of the Quarterly, "Extra-Galactic Invaders," I must certainly say that it was "Interplanetary," but I found it rather long drawn out. Then again, the first part, to my way of thinking, had no connection with the second. What were the Lunarians like? Another point I should like to put forward is that in one story the Moon is a dead world, while in another it is swarming with life.

Why don't writers get more of a uniformity in their stories of the Moon? Of course I know that people's opinions differ and personally I don't see why some form of life utterly different from any form known on our world should not exist on the Moon, even in the face of all astronomical evidence. There also arises another point. In the January AMAZING STORIES, there is a story "The Prince of Space," the ruling species on Mars is represented by a being which apparently could not have a large brain, yet it is represented as being of the highest intelligence.

That most certainly was hardly like anything on earth, yet there was a resemblance to the octopus.

J. Stirling,
Caixa Postal 282,
Pernambuco, Brazil.

(We know little about the moon so our writers cannot be blamed for varying greatly in their treatment of this subject. The uniformity that you asked for implies a more definite knowledge than we possess. It follows that uniformity of the stories about the moon is something which is not to be desired. We like to have our readers presented with different ideas on the many undetermined physical constants of our satellite. The clue to the theory, if we may so term it, of this magazine is the uncertainty of natural science, the probability that it will change from year to year, that what seems impossible today may be realized tomorrow. These ideas constitute in a sense the status of our magazine.—EDITOR.)

A GOOD CRITICISM OF A CLAUSE IN "THE POWER PLANET"

Editor, AMAZING STORIES:

I am a constant reader of the AMAZING STORIES magazine and like it very much.

In the June issue, there was a story called "The Power Planet." In this story some men went out on the dark side of the planet to mount some three-inch guns. This was done with ease, I suppose, but when it came to the question of heating them, they merely ran some high resistance wire around them and heated them by electricity. This cannot be done because space is supposed to be at the absolute zero, or zero on the Kelvin scale, and when any conductor is in the absolute zero, an electric current will run in it forever because the molecules are at rest, or motionless, therefore they would get no heat out of the wires because there would be no resistance.

Truman Record,
652 Lewis Avenue,
Kansas City, Missouri.

(It would be an easy matter to overcome the zero resistance of the wires you refer to by giving them a preliminary heating or by turning on a flame at the very beginning of the passage of the current. After that, the current would take care of it and hold them above the zero mark. But you made a "point worth taking," as it is sometimes expressed.—EDITOR.)

BACK NUMBERS OBTAINABLE FROM A CORRESPONDENT. NOTES ON OUR AUTHORS.

Editor, AMAZING STORIES:

I have been a reader of "Our Magazine" for over a period of four years. Undoubtedly it is one of the finest on the market. The best authors include among the many, Edmund Hamilton, A. Hyatt Verrill, David H. Keller, Edward E. Smith. The last named carries off all honors of the year for his "Skylark Three." He certainly is a very fast fellow—covering millions of miles in a few seconds—wandering through the infinite at the twinkling of an eye. What has happened to our author of the "Sunken World," Stanton Coblenz? We have had nothing from his pen for quite a long time. Hope he is not still looking for lost "Atlantis."

During the past few months there seems to be a number of calls for back numbers. I happen to be well supplied with magazines dating as far back as late 1927. If there are any readers wishing to get some, they could communicate with me at the below address.

Edward David,
7458 Berri St.,
Montreal, Canada.

(Dr. Smith has won great praise for his stories, he is a scientific life-long student of very high standing and is gifted with the story-telling instinct. "The Blue Barbarians," by Stanton A. Coblenz appears in the Summer 1931 Quarterly.—EDITOR.)

HIS SCIENCE TEACHER ENJOYS A. S.

Editor, AMAZING STORIES:
I am fourteen years old, and have been for the past two years reading AMAZING STORIES. This is the first time I have ever tried my hand at expressing my opinions, however.

First of all let me say that I think A. S. is great. I read many different magazines, but of them all I enjoy A. S. best. I have just finished reading the July issue and this is how I class the stories:

"Spacehounds of IPC"—has a fine start;
"Cleon of Yzdril"—poor;
"The Jameson Satellite"—good;
"The Metal Monster"—fair;
"The Raid of the Mercury"—good for its kind;
"The Stolen Chrysalis"—too much like a detective story.

Now to the plea for reprints. Let me add my voice to that of those who already have asked for these. Why not put out a yearly reprint issue containing stories of several years ago? I am sure it would sell successfully.

Also about the name. I recently noticed a letter from M. S. Wexler in your magazine and I agree with him in everything he says. The name AMAZING STORIES misled me until one day I found a copy of it. Only then did I find that it wasn't filled with scientific "fairy stories" but that most of the stories were based on happenings, etc., that are probable.

Since finding the copy I have been reading A. S. every month, and take my copies when I am through with them to my science teacher, who says he also enjoys them.

I am criticized by many people for reading such "worthless literature" (so they call it). I have found, however, that A. S. is far from worthless literature. From reading it I glean many scientific facts and much food for thought. On the whole, I enjoy it immensely.

James H. Logan,
Altamont Apt. 33,
Charlottesville, Va.

(An interesting thing about our correspondence is that we receive a number of letters from young writers. There is no better ascertained facts in literature than that the author who can please young readers is doing very good work. We can see what a wonderful reputation was made for its author by the children's books of "Alice in Wonderland" and "Alice in the Looking Glass." Neither of them at all large, they made the reputation of the author and he was never able to successfully produce another book, comparable to these two. Milne, by his juvenile books, has won an international reputation. So if our young readers write to us and tell us that they like our stories it makes us feel that our stories must be good.—EDITOR.)

SOME COMPLIMENTS FOR THE MAGAZINE, BUT OUR POOR ARTISTS!

Editor, AMAZING STORIES:

I have read AMAZING STORIES from the first and have all the back numbers, including the Quarterlies, but this is my first letter. Of all the sciencefiction on the market, and I read them all, yours is much the best. Your magazine is also very well bound and its flexibility is gratifying after the stiff, thick pages of other magazines. You also keep your advertising space low and separate from the reading matter, which is a good thing.

I have several queries. In the "Time Flight," June, 1931, shouldn't Hubble have arrived at his destination in a few hours at most? Instead, the author has him traveling 8-9 years and has Jerry overtake him, although he started many years later. What happened to the lost interval in view of the fact that the two time machines chased back and forth over a period of time much more than the hundred years Hubble intended to travel, and did it in a short time?

Has the objection against time travel into the past, that the time traveler could then kill his own grandfather and so never be born, been answered?

I have one fault to find—your inside illustrations by Wesso and Morey are uniformly poor. Paul, however, is very good.

Otherwise your magazine is A-1. Your paper is good, type clear, the cover fine, and the stories clean and uniformly good.

J. Steinmetz,
Box No. 40,
Montrose, New York.

(We think we may truthfully assert that the objection to the time-traveling into the past which you cite has never been answered as yet.

We will leave your "Time Flight" story to the author to answer. We disagree with you, however, in what you say about our artists. We would put the three you name on the same level, and that level will be at a good high elevation. The writer of these lines has taken a rather elaborate course in the mathematics of perspective and mathematics of drawing with excursions into painting in an amateur way, but when doctors disagree, what is to be done about it? Yet, we have to thank you most sincerely for what you say about liking AMAZING STORIES.—EDITOR.)

SOME REMARKS ON THE WORK OF OUR ARTISTS. TELEVISION HILL COMPLAINED OF.

Editor, AMAZING STORIES:

In March's Discussions, I saw D. D.'s criticism of "Skylark Three" and his praise of "The Green Girl." I want to tell you he is mistaken. I think that "The Green Girl" was not explained sufficiently to rate as high as "Skylark Three."

This is my first letter and I want to complain about a story called "Television Hill." In colloquial language, it is a "gyp." It seemed to me that after writing the plot he had to explain quickly, so he makes the heroine the betrayer, etc.

So far, I think the best story I have read is "Callisto at War."

I think Wesso draws best for mechanical designs. Your March cover is wrong. It pictures a great clamp catching an airplane. Now there are pictured six cables running to a wheel on the clamp. How is the clamp opened and shut? Also, from the relative size of the clamp it could not possibly fit into the hole pictured in the "helicopter," and if it didn't fit in, how could the helicopter land with it protruding beyond the landing wheels? And the rivets, which apparently hold the motors on the plane: In proportion, they would be quite large for rivets, and since when have motors been held on by rivets to the fuselage? If the plane is of steel braces, the rivets would not be quite so conveniently placed. Why does the name AMAZING, diminish only to "Z"? Look at the faces in "The Valley of the Titans."

In the illustration "On Board the Martian Liner" (which was very good) it shows Chick tearing off strips of cloth. Would they be visible? And in the picture in "The Thing That Walked in the Rain." What is the hero doing with riding boots? Outside of this, everything is fine.

George McInerney,
133 81st Avenue,
Brooklyn, N. Y.

(One point in story writing is undoubtedly to have the end or climax a surprise. O. Henry was a great adept in bringing out this point in his short stories, and everyone must admit that the ending of "Television Hill" and the running away of its heroine was unexpected. One of our correspondents feels that he would like to have a sequel to the story, and the condition of things is such that a sequel could be written and perhaps will be. We are going to let our criticisms speak for themselves; they are what may be termed painfully numerous.—EDITOR.)

MORE ILLUSTRATIONS ASKED FOR, BUT THEY TAKE UP SPACE

Editor, AMAZING STORIES:

I have been an ardent reader of AMAZING STORIES for a long time, and although I try my darndest I can not find any fault whatsoever.

But let's get down to "brass tacks" and talk over something of real importance, namely "our" magazine. AMAZING STORIES is a magazine "after my own heart." The stories which you publish are of the finest quality, and, I know, are enjoyed by everyone who reads them. But, may I make a suggestion? Why not try and have more illustrations to accompany your wonderful stories? Why not put your monthly magazine on about the same basis as your Quarterlies? In my mind, that is the one thing that would greatly improve your monthly.

Neal Smith,
5280 Federal Building,
Denver, Colorado.

(Nothing would please us better than to give you more illustrations, but considerations of space operate to restrict the pictures. There are lots of things we would like to do in this world of ours, but a proverb says "Circumstances alter cases." And one of our circumstances is economy of our space.—EDITOR.)

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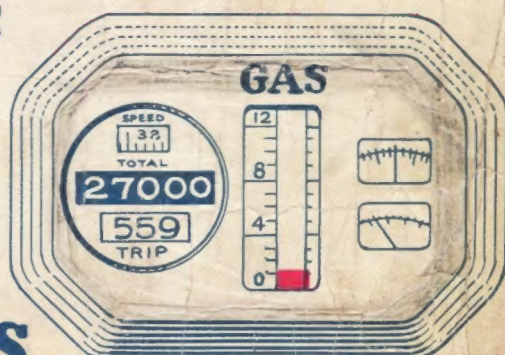
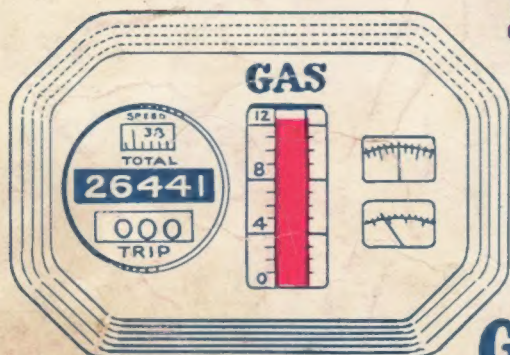
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